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TEACHER INVITATIONS AND EFFECTIVENESS AS REPORTED BY PHYSICAL  
EDUCATION STUDENTS GRADES 9-12

*The University of North Carolina at Greensboro*

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TEACHER INVITATIONS AND EFFECTIVENESS AS REPORTED  
BY PHYSICAL EDUCATION STUDENTS  
GRADES 9-12

by

Robert B. Turner

A Dissertation Submitted to  
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Approved by

  
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APPROVAL PAGE

This dissertation has been approved by the following committee of the  
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The major purposes of this study were (1) to determine the relationship between perceived inviting (I-Type) and effective (E-Type) behaviors of physical education teachers for grades 9-12, (2) to determine differences between I-Type and E-Type teacher behaviors as perceived by students identified by their teachers as having a high or low expectancy for success in the performance of physical skills, and (3) to determine differences between I-Type and E-Type teacher behaviors as reported by students identifying themselves as athletes or nonathletes.

Included in this study was an investigation of the relationships between combinations of inviting/disinviting and effective/noneffective teacher behaviors as determined by a median score for I-Type and E-Type teacher behaviors. Also, this study sought to determine differences between I-Type and E-Type teacher behaviors as viewed by students indicating that they had worked very hard and that they had learned very much in their physical education class.

The IN-Scale (Inglis, 1976) was completed by 206 students enrolled in 14 physical education classes, grades 9-12. A significant positive relationship ( $r = .84$ ) existed between the total scores of I-Type and E-Type behaviors. Similarly significant positive relationships existed between the combination categories of inviting-effective ( $r = .59$ ) and disinviting-noneffective ( $r = .63$ ) teacher behaviors. Six of the fourteen physical education teachers were perceived as demonstrating disinviting-noneffective behaviors by 50% or more of their students.

The data also indicated that high expectancy students perceived their physical education teachers as being more inviting and effective than did low

expectancy students. Significant differences were not found between I-Type and E-Type teacher behaviors as perceived by athletes and nonathletes, or by students indicating that they had learned very much and that they had worked very hard in their physical education classes.



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## TABLE OF CONTENTS

	Page
APPROVAL PAGE . . . . .	ii
ACKNOWLEDGEMENTS . . . . .	iii
LIST OF TABLES . . . . .	vi
CHAPTER . . . . .	
I. INTRODUCTION . . . . .	1
Statement of the Problem . . . . .	3
Definition of Terms . . . . .	5
Assumptions . . . . .	7
Scope of the Study . . . . .	7
Significance of the Study . . . . .	8
II. REVIEW OF THE LITERATURE . . . . .	10
Effective Teaching . . . . .	11
Teaching Physical Education . . . . .	14
Invitational Teaching . . . . .	17
III. PROCEDURES . . . . .	30
Sources of Data . . . . .	30
Instrument . . . . .	31
Data Collection . . . . .	34
Data Analysis . . . . .	39
IV. ANALYSIS AND DISCUSSION OF THE DATA . . . . .	43
Relationship of Inviting and Effective Behaviors . . . . .	43
High/Low Expectancy Students and Athletes/Nonathletes . . . . .	52
Student Report of Effort and Acquisition . . . . .	60
V. SUMMARY AND CONCLUSIONS . . . . .	72
Conclusions . . . . .	74
Implications . . . . .	75
Recommendations for Further Study . . . . .	76
BIBLIOGRAPHY . . . . .	78
APPENDICES . . . . .	
APPENDIX A. INSTRUMENT . . . . .	84

	Page
APPENDIX B. FORM . . . . .	91
APPENDIX C. FORM . . . . .	93
APPENDIX D. LETTER . . . . .	95
APPENDIX E. FORM . . . . .	98
APPENDIX F. DISTRIBUTION OF DATA . . . . .	100
APPENDIX G. DISTRIBUTION OF DATA . . . . .	102

## LIST OF TABLES

TABLE	Page
1 Test Reliability of IN-Scale Factors . . . . .	33
2 Correlation of IN-Scale Test-Retest . . . . .	37
3 Mean, Variance, Standard Deviation Test-Retest . . . . .	37
4 Correlation of IN-Scale Factors Test-Retest . . . . .	38
5 Summary of Teachers, Students, and Grade Levels . . . . .	42
6 Correlation of I-Type & E-Type Behaviors . . . . .	44
7 Distribution of Student Response by Combination Behavior Categories . . . . .	47
8 Correlation of Inviting and Effective Behaviors Within the Inviting-Effective Combination Category . . . . .	48
9 Correlation of I-Type and Noneffective Behaviors Within the Inviting-Noneffective Combination Category . . . . .	49
10 Correlation of Disinviting and E-Type Behaviors Within the Disinviting-Effective Combination Category . . . . .	50
11 Correlation of Disinviting and Noneffective Behaviors Within the Disinviting-Noneffective Combination Category . . . . .	51
12 Teacher Rating of Student Expected Physical Performance . . .	53
13 ANOVA of I-Type Behaviors High & Low Expectancy Students . .	54
14 ANOVA of E-Type Behaviors High & Low Expectancy Students .	55
15 Distribution of Athletes and Report of I & E-Type Behaviors . .	57
16 ANOVA of I-Type Behaviors Athletes/Nonathletes . . . . .	59
17 ANOVA of E-Type Behaviors Athletes/Nonathletes . . . . .	60
18 Distribution of Student Response to I Learned Very Much and I Worked Very Hard in This Course Question . . . . .	62
19 ANOVA of I-Type Behaviors Learn/Work . . . . .	63
20 ANOVA of E-Type Behaviors Learn/Work . . . . .	64

TABLE		Page
21	ANOVA I-Type Behaviors Not Learn/Not Work . . . . .	66
22	ANOVA E-Type Behaviors Not Learn/Not Work . . . . .	67
23	Correlation of Total Score and Indication of Past and Present Teacher Performance Related to I & E-Type Behaviors . . . .	69

## CHAPTER ONE

### INTRODUCTION

Public schools are charged with the task of providing a free education to the children of these United States. To accomplish that task, public schools are funded through local and state monies, frequently supplemented by funds from the federal government. Presently, due to a variety of reasons, local, state, and federal monetary support to the public schools is diminishing. At the same time school constituencies are raising a strong cry for quality in education ("Why Public Schools Fail," 1981). Given this current interest in the quality of education, the question of teacher effectiveness gains in importance.

Teacher effectiveness, which some believe is directly related to academic achievement, may be viewed as the core element of quality education (Silvernail, 1979). Therefore, how effectively one teaches may be judged by how well one's students perform on general scholastic tests. Such a simplistic view is commonly held by constituents of public schools. This is true especially as it relates to classroom teachers instructing such perceived basic subjects as math, English, and science. These teachers are in the vanguard of the quest to determine what factors constitute effective teaching, and subsequently quality education. Other teachers, such as in the field of physical education, do not necessarily receive similar attention from researchers attempting to determine "what makes a difference in the schooling of children" (Lambeth, 1980, p. 1).

Many variables are thought to impact upon effective teaching. Inglis (1976) believes that effective teaching consists of three major factors: course organization, interpersonal contact, and learning environment. Others perceive effective

teaching as being related to the expectations teachers hold of students (Brophy & Good, 1974; Rosenthal & Jacobson, 1968). More recently, Purkey (1978; Purkey & Novak, in press-a) postulated that teacher effectiveness might be related to the quality and quantity of "invitations" or disinvitations" transmitted to students.

Essentially, the research tends to indicate that teacher behavior, demonstrated toward students, is at the very heart of teacher effectiveness. Curriculum is important; how it is taught is of equal, if not greater, importance. Therefore, it is fitting for educational researchers to look at both process and product variables (Dunkin & Biddle, 1974). Such is the situation with this study, which is an investigation of a well-researched topic (teacher effectiveness) and a new educational concept (invitational education) in physical education.

The concept of invitational education (Purkey, 1978; Purkey & Novak, in press-a) is relatively new and thus has received little prior attention from researchers. To date, only two studies have attempted to relate inviting/disinviting teacher behaviors to those associated with teacher effectiveness. The first (Inglis, 1976) was concerned with the development of an instrument to record student perceptions of inviting/disinviting teacher behavior and effectiveness. Additionally, that investigation studied invitations and effectiveness in a post-secondary setting of general and technical education. The second (Lambeth, 1980) used the Inviting-Noninviting (IN-Scale) developed by Inglis (1976) in a secondary setting of general and technical education. Both studies indicated that teachers demonstrating inviting behaviors (as reported by students) tend to be perceived as effective teachers.

Teaching, whether it be in a classroom, gymnasium, or on an athletic field, is a complex process. It involves infinite variables which impact the

teaching-learning process. The more we can relate teacher behavior to teacher effectiveness, the better we may be able to identify and promote behaviors which significantly contribute to that effectiveness. Therefore, the major purpose of this study was to investigate inviting (I-Type) and effective (E-Type) behaviors of physical education teachers (Grades 9-12) as reported by their students.

### Statement of the Problem

The purposes of this study were (1) to measure student perceptions of inviting (I-Type) and effective (E-Type) behaviors of physical education teachers in grades 9-12, (2) to measure I-Type and E-Type behaviors of physical education teachers as reported by students identified by their teachers as high and low expectancy students in the performance of physical skills, and (3) to measure I-Type and E-Type behaviors of physical education teachers as reported by students participating or not participating on a school athletic team (athletes/nonathletes). Also under investigation is the possibility that students perceive physical education teachers as demonstrating inviting-effective, inviting-noneffective, disinviting-effective, and disinviting-noneffective behaviors.

Previous investigations (Inglis, 1976; Lambeth, 1980) have indicated that inviting teachers tend to be effective teachers. In addition to the inviting and effective behaviors contained in the IN-Scale, those studies included student reports on grades received, student statements as to how hard they worked and how much they learned in a given class as measures of achievement. Hence, those studies focused on both product and process variables. This study attempted to expand on those investigations by broadening the research effort into the physical education setting and by the addition of different variables.



As previously mentioned, Purkey (1976) and Purkey and Novak (in press-a) believe that teachers invite or disinvite students to learn. They further suggested that there are four levels of inviting/disinviting behavior demonstrated by teachers, intentionally disinviting, unintentionally disinviting, unintentionally inviting, and intentionally inviting (1978, p. 17). Neither Inglis (1976), Lambeth (1980) nor this study have attempted to investigate that possibility. What is intentional or unintentional may only be determined by the sender and perhaps an observer of the invitational process (Novak, 1980). What both Inglis and Lambeth found indicates only that teachers display perceived I-Type and E-Type behaviors. This investigation sought to amplify those findings by studying the possibility that physical education teachers are viewed by their students as displaying inviting-effective, inviting-noneffective, disinviting-effective, and disinviting-noneffective behaviors.

Teacher expectations, also believed to be related to teacher effectiveness, have received considerable attention from educational researchers (Brophy & Good, 1974; Martinek & Johnson, 1979; Rosenthal & Jacobson, 1968). This study sought to determine whether any differences exist between the perceptions of students identified as high and low expectancy students as they pertain to I-Type and E-Type behaviors of their physical education teachers.

One may assume that most athletes in a physical education class are known to their teachers. This assumption is based on the belief that in the public school system many physical education teachers are also assigned coaching duties. If not so assigned, a majority of physical education teachers are familiar with sport participants. Therefore, it is frequently assumed that physical education teachers demonstrate more I-Type and E-Type behaviors toward student athletes than toward nonathletes. It was a task of this study to determine whether that possibility is true.

To satisfy the purpose of this study, the investigator sought answers to the following questions:

1. Is there a significant relationship between I-Type and E-Type behaviors of physical education teachers as reported by students?
2. Is there a significant relationship between I-Type and noneffective type behaviors of physical education teachers as reported by students?
3. Is there a significant relationship between disinviting type and E-Type behaviors of physical education teachers as reported by students?
4. Is there a significant relationship between disinviting and noneffective type behaviors of physical education teachers as reported by students?
5. Is there a significant difference between I-Type and E-Type behaviors of physical education teachers as reported by high and low expectancy students?
6. Is there a significant difference between I-Type and E-Type behaviors of physical education teachers as reported by athletes and nonathletes?
7. Is there a significant difference between I-Type and E-Type behaviors of physical education teachers according to student reports as to how hard they worked and how much they learned?
8. Is there a significant relationship between I-Type and E-Type behaviors of physical education teachers based on total score of the IN-Scale and how students respond to the statement "this is the most inviting and effective physical education teacher I have ever had"?

#### Definition of Terms

IN-Scale—a 50-item, Likert-type scale designed to measure inviting and effective teacher behaviors, consisting of five factors, two of which (caring and respect) are perceived as inviting; the other three (course organization, interpersonal contact, and learning environment) are perceived as effective.

I-Type Teacher—teacher who scores above the median of Factors I and II (caring and respect) of the IN-Scale as reported by students.

E-Type Teacher—teacher who scores above the median on Factors III, IV and V (course organization, interpersonal contact, and learning environment) of the IN-Scale as reported by students.

High Expectancy Student—student identified by his or her physical education teacher as one who has a high likelihood for success in the performance of physical skills.

Low Expectancy Student—student identified by his or her physical education teacher as one who has a low likelihood for success in the performance of physical skills.

Athlete—student who is a participant on a school athletic team.

Nonathlete—student who is not a participant on a school athletic team.

Inviting/Effective Teacher—teacher who scores above the median on all factors (caring, respect, course organization, interpersonal contact, and learning environment) of the IN-Scale as reported by students.

Inviting/Noneffective Teacher—teacher who scores above the median on Factors I and II (caring and respect) and below the median on Factors III, IV and V (course organization, interpersonal contact, and learning environment) of the IN-Scale as reported by students.

Disinviting/Effective Teacher—teacher who scores below the median on Factors I and II (caring and respect) and above the median on Factors III, IV and V (course organization, interpersonal contact, and learning environment) of the IN-Scale as reported by students.

Disinviting/Noneffective Teacher—teacher who scores below the median on all Factors (caring, respect, course organization, interpersonal contact, and learning environment) of the IN-Scale as reported by students.

### Assumptions

The following assumptions were made:

1. Students will accurately report their perceptions of physical education teachers behaviors on the IN-Scale and that information is a valid source of data for study.
2. Being in a physical education class has some influence on a student's perception of the physical education teacher.
3. The IN-Scale (Inglis, 1976) will measure I-Type and E-Type behaviors of physical education teachers of grades 9-12.
4. Physical education teachers can and do form expectations of students concerning the performance of physical skills.

### Scope of the Study

The study included selected volunteer physical education teachers and students (grades 9-12) enrolled in one class of each teacher from two public school systems in southern Virginia. Fourteen physical education teachers from the two school systems volunteered as subjects, and 206 students returned usable IN-Scale Answer Sheets. The selected I-Type and E-Type behaviors were limited to those listed in the IN-Scale. Students also provided demographic data on the answer sheet. Only information that pertained to grade level and athlete/nonathlete status was used in the study. Students further responded to several other questions on the answer sheet including how much they learned and how hard they worked in their class. Statistical analyses were performed using Pearson Product Moment Correlation and One-Way Analysis of Variance techniques.

The limitations of the study reflected those which would be encountered in any exploratory and descriptive study. Included among those limitations were (a) the ability of students in grades 9-12 to comprehend the wording of items on the IN-Scale and (b) the accuracy of student perceptions of their physical education teachers I-Type and E-Type behaviors.

### Significance of the Study

As in the case of the classroom teacher, the teaching behavior of the physical education instructor may be perceived as a central issue in the teaching-learning process. Physical education teachers may be observed performing in ways similar to classroom teachers in the areas of invitations and effectiveness. They too form expectations of students and transmit invitations and disinvitations. Further, those factors of effectiveness indicated by Inglis (1979)—course organization, interpersonal contact, and learning environment—may also be seen as measures of effectiveness within the physical education environment.

Unlike most subjects in the public school curriculum, physical education may not be requisite for further educational development of students. It is, perhaps, requisite to longer life and better health. The exercise involved in learning and performing physical skills may be perceived as developing an individual's coordination, strength, and endurance. Also, many of the activities presented in physical education may become lifelong leisure pursuits. Therefore, the effectiveness of how physical education activities are presented may be of considerable import to the future well-being of present-day students.

The relationship between invitations and effectiveness has been indicated by Inglis (1976) and Lambeth (1980). That relationship was determined in a

postsecondary (Inglis, 1976) and in a secondary setting (Lambeth, 1980) in a general/technical studies environment. Both investigations indicated that inviting teachers tend to be effective teachers.

In spite of the fact that physical education is taught in a gymnasium or on a playing field, it appears that the presentation of subject matter is similar to that used by classroom teachers. Therefore, one might expect to find that physical education teachers may also display inviting and effective behaviors. The information derived from this study may be useful for in-service training of both classroom and physical education teachers in developing consistent I-Type and E-Type behaviors. In addition, this investigation may assist in providing physical education teachers a method for analyzing their behavior, thereby optimizing the possibility for initiating more inviting/effective teaching. Therefore, this exploratory study may make a contribution toward enhancing the quality of education as it pertains to physical education.

## CHAPTER II

### REVIEW OF THE LITERATURE

Teaching is a complex process. It may also be considered an awesome responsibility as A. E. Manson's "Credo" emphasizes:

#### CREDO

I am a child  
 And I have within me  
 All that is, was and shall be  
 For mankind through countless ages.  
 I am mankind indestructable,  
 I am mankind perpetual,  
 I am, I was, I shall be  
 The Human Race.

I am a child  
 And I have locked within me  
 The potential inherent in my ancestors.  
 I am a part of what has gone before,  
 Even as I shall influence  
 What follows me.  
 It is I who discovered fire and the wheel  
 It is I who shall chart new worlds yet undreamed of.

I am a child.  
 Be cautious in your teaching of me,  
 For in me, you are shaping  
 The nucleus of humanity (A. E. Manson, 1975).

Some teachers will take note of Manson's comments and perhaps modify their teaching behavior. Others may nod and agree, yet return to teaching without knowing how to meet the challenge. The different approaches to the responsibility may determine the degree of what is termed effective teaching.

Guided by a synthesis of literature on effective teaching, Inglis (1976) perceived it to consist of three major factors: course organization, interpersonal contact, and learning environment. Others view effective teaching as being

related to the expectations teachers have for student performance (Brophy & Good, 1974; Rosenthal & Jacobson, 1968). More recently, Purkey (1978), and Purkey and Novak (in press-a) purported effective teaching to be associated with the invitations and/or disinvitations teachers transmit to their students.

Acknowledging that many variables impact on the teaching-learning process, for the purposes of this study only those related to effective and inviting teaching will be reviewed.

### Effective Teaching

Lambeth (1980) believes teacher effectiveness to be an elusive subject. Support for that contention is found in Medley (1972) who reported research on teacher effectiveness ranging from personality traits or characteristics to the development of teacher competencies and the deployment of those competencies (p. 12). Silvernail (1979) provided an historical perspective on the systematic study of effective teaching which spans a period of sporadic investigation of similar variables as mentioned by Medley (1972).

Early on, the primary concern for determining teacher effectiveness was to develop criteria that could be used for hiring, promotion, or dismissal of teachers, and for planning or improving teacher-training programs (Barr, Burley, Cage, Orleans, Pace, Remmers, & Ryans, 1953). Also, during this early research period, an effort was made to determine student perceptions of good teachers (Silvernail, 1979). According to Silvernail (1979), the characteristics of good teachers focused on teaching skills, knowledge of subject matter, considerateness, and fairness in grading (p. 6).

Fattu (1962) and Sanford and Trump (1950) believed that teacher traits, competencies, behaviors, personalities, scholarship, and intelligence were



important to effective teaching. Even so, Getzels and Jackson (1963) postulated that few studies rendered consistent findings and that traits were difficult to define. Medley (1972) reported that no study attempted to measure the effects of teacher characteristics on student achievement.

In the late 1950's and early 1960's interest in the teaching process appeared to shift from identification of teacher characteristics to teacher observation. Medley and Mitzel (1958) devised the Observation Schedule and Record (OScAR). Then Flanders (1960) introduced his Interaction Analysis System (FIAS). These studies followed an investigation by Withall (1949) who sought the effects of "learner-centered" and "teacher-centered" classroom climates. As a result of those studies, teacher behavior traits appeared to be defined as specific teacher behaviors that could be categorized, observed, and recorded (Silvernail, 1979).

Flanders' (1960) system focused on teacher talk and student talk, with two types of teacher influence, direct and indirect. A major finding in his study centered on teacher flexibility. "As a result of the study, it became clear that the concept of teacher flexibility was more predictive of teaching success than was the concept of direct-indirect influence (Amidon & Flanders, 1971, p. 80).

Amidon and Giammetto (1965) found that elementary teachers, judged "superior" by their supervisors, displayed more indirect teacher influence than did a group of teachers rated average. Support for the indirect teaching style as effective instructional methodology is given by Brophy and Good (1974). To them, effective teachers are democratic, display enthusiasm and warmth, and have an abstract belief system as opposed to a concrete style (p. 268). Taking a different approach, Silberman (1969) postulated four teacher attitudes

that influence teacher-student interaction: attachment, concern, indifference, and rejection. Students from the indifference group experienced very little contact with the teacher. When contact was made it was brief and with little emotion displayed (pp. 402-407).

Graham (1981) wrote that "teaching is comprised of a series of skills which a teacher attempts to employ in a smooth-flowing pattern to produce successful lessons" (p. 19). He sees reinforcement, feedback, lecturing, observation, and demonstration as a few of the skills teachers can use. Further, the more successful teacher will have learned to use a greater number of teaching skills (p. 19).

Goble and Porter (1977) set forth five guidelines for the ideal teacher:

1. Understands the way people at various ages and in various styles of development perceive the world around them, and how those perceptions are affected by cultural and social difference and by individual variation and handicap.
2. Knows where resources are located.
3. Is able to organize access to resources.
4. Strengthens confidence of student in his own capabilities.
5. Interprets student's perceptions in terms of past history, future probability, and the large perspectives of the majority (p. 57).

Command of subject matter, ability to get material across to the student, and rapport with students from both the group and individual perspective are seen as effective teacher behavior by Hildebrand (1973), Romine (1974), and Marques, Lane, and Dorfman (1979). Similar teacher behaviors were stated by Brethower (1973).

In discussing teacher characteristics, Martinek (1981) believes "good teachers are typically those who communicate to their students that they are capable, important, and self-sufficient" (p. 59). He also feels that those teachers establish communication patterns with all students. This sentiment appears to be congruent with Purkey's (1978) belief that students are able, valuable, and responsible.

According to Nash (1976) "teaching is vitally concerned with personal relationships" (p. 1). Combs, Avila, and Purkey (1971) indicated that teachers "need to acquire effective techniques and ways of working with people" (p. 273). Read (1971) perceived effective teaching as establishing a personal, human relationship with students both in and out of the classroom, introducing topical materials in lectures, and devising examinations that express the uniqueness of both the student and the teacher (p. 27).

In summary, effective teaching has been associated with teacher traits, personalities, behaviors and competencies. Effective teachers are thought to be democratic, enthusiastic, and warm. Additionally, teachers perceived as effective demonstrate a series of skills which are employed in a smooth-flowing pattern.

### Teaching Physical Education

The preceding review presented characteristics and behaviors believed associated with effective teaching from a general perspective. This section will focus on a brief review of how those behaviors and characteristics may relate to teaching physical education.

The reader is cautioned that the following information does not support or refute effective teaching as previously developed, for as Anderson (1978) stated "they are essentially descriptive studies" (p. 9). "They tell what

happened; not what should or should not have been done" (p. 9). Even so, some evaluative comments by the authors tend to differentiate good behaviors from those that could be characterized as less good teaching behaviors.

According to Siedentop, Tousignant, and Parker (1982), "student involvement in the subject matter lies at the very center of much of the teacher effectiveness research" (p. 1). Evidence of that is found in the Costello and Laubach (1978) study of student behavior (pp. 11-24). Using the BESTPED (BEhavior of STudents in Physical EDucation) system developed by Laubach (1975), Costello (1977) described the behavior of 193 students in 20 different physical education classes. The results, reported in Costello and Laubach (1978), reveal some interesting observations. Worthy of note is that a considerable portion of the class time was devoted to the teacher's giving instructions, and a large part of the time for students was spent in waiting for an activity to begin (p. 23).

Costello and Laubach (1978) suggested some ways for reducing waiting time. Specifically proposed were improved class organization procedures, maximizing use of equipment or providing alternative activities until the equipment could be used, and providing games where students are included continuously rather than being excluded from play. An example given was to award penalty points rather than having the child sit down when hit while playing dodge ball (p. 23). Costello and Laubach (1978) also believe teacher talking time could be reduced through brief, concise statements, delineation of efficient organizational methods, and providing relevant feedback during the performance of physical activities (p. 23).

Anderson and Barrette (1978) used Anderson's Descriptive System (1974) to investigate teacher behavior. They found that physical education teachers spent a large portion of the class time giving instructions. They also found

that many behavior shifts occurred and that the teachers were dominant in carrying out and communicating their teaching intentions (1978, p. 37).

Cheffers and Mancini (1978) used CAFIAS (Cheffers Adaptation of Flanders Interaction Analysis System), developed in 1972, in an interaction analysis study (1978). CAFIAS expanded on Flanders' system by including observation and recording of nonverbal, verbal, or both verbal and nonverbal behaviors of teachers and students.

In analyzing 83 tapes of the Data Bank (Anderson, 1978), Cheffers and Mancini (1978) found teacher lecture, demonstrations, and direction giving as the predominant mode of teaching. Practically no acceptance of student feelings and ideas or praise or questioning behaviors were demonstrated by the teachers (1978, p. 47). These findings prompted the researchers to make the following statement:

In an era which consistently emphasizes humanism in educational processes, why do physical educators overwhelmingly adopt direct, traditional teaching behaviors such as lecture, demonstration, and direction giving? Such humanistic activities as acceptance of student feelings and ideas, using praise and encouragement, and using questions to stimulate student thought were singularly lacking from the sample teachers in this study. (p. 48)

Fishman and Tobey (1978) conducted an investigation of augmented feedback which "is frequently used to identify instructional behavior contingent upon a student's response" (p. 51). Using Fishman's system (1974) Tobey sought answers to questions such as, how frequent is feedback, how individualized is feedback, how specific is feedback, and does the feedback tend to be positive, negative, or neutral (p. 51).

The results, reported by Fishman and Tobey (1978) indicate that feedback was most frequently toward one student, lacked specificity as it was directed toward a whole movement rather than toward part of a movement, and that

negative feedback occurred more frequently than positive feedback (pp. 57-58). They also reported that auditory feedback was given more frequently than auditory-visual and auditory-tactile feedback (p. 55). This caused them to state that "in view of the visible nature of gross movement skills, it would seem physical education would offer a unique opportunity to administer auditory-visual and auditory-tactile feedback" (p. 55).

Hurwitz (1978) believed that things occur at a rapid pace in physical education classes and that physical education teachers seem to be fairly traditional (p. 80). He also supported the collection of normative data. Once compiled, that data should be studied to determine the "goodness" and "badness" of the normative teaching behavior (p. 81).

Summary. The preceding discussion focused on the identification of characteristics, behaviors, and traits thought to compose effective training. It presented some reasons for the need of such identification, described the shift from seeking specific teacher characteristics to observing teacher behavior as a way of determining effective teachers, discussed a humanistic approach as effective style, and reported studies of physical education teachers. The discussion supported Lambeth's (1980) contention that the determination of what constitutes effective teaching is an elusive subject.

#### Invitational Teaching

The concept of invitational teaching (Purkey, 1978; Purkey & Novak, in press-a) is founded on three major factors: the importance of positive teacher attitudes and beliefs toward and about students, teacher behaviors which emphasize positive student self-concept, and improvement of student

achievement (Lambeth, 1980, p. 27). Purkey (1980) believes invitational teaching to be a fresh approach to the educative process which maintains that students respond best when they are invited to feel valuable, able, and responsible. Invitational teaching emphasizes a positive approach by teachers and is characterized by intentionality (Purkey, 1978; Purkey & Novak, in press-a; Turner & Purkey, in press-b). Therefore, positive expectations for student potential and performance appear to be a prerequisite for invitational teaching.

Teacher expectations, or the pygmalion effect, has received considerable attention since Rosenthal and Jacobson published Pygmalion in the Classroom (1968). According to Martinek (1981) that study provided "convincing evidence that teachers give preferential treatment to their students as a result of certain expectations held by the teacher" (p. 59). Hutsler (1981) believed that the "basic tenet of the pygmalion effect is that one gets what one expects" (p. 88).

Martinek (1981) also indicated that teacher expectations are closely related to the concept of self-fulfilling prophecy (Martinek, 1981; Merton, 1948; Rosenthal & Jacobson, 1968). Nash (1976) stated that the self-fulfilling prophecy

assumes certain propositions to be true; first that a teacher's expectations about pupils will be communicated to . . . pupils, second that the pupils will respond to this knowledge (and not some other unknown factor) and third, that these processes take place without there necessarily being awareness in the consciousness of the people concerned about what is going on. (p. 15)

Brophy and Good (1974) defined teacher expectations as inferences that teachers make about present and future academic achievement and general classroom behavior of their students (p. 32). According to Nash (1976), the unexplored taken-for-granted assumptions by teachers about student potential are possibly influencing teacher interaction with students (p. 40).

That teachers have expectations for students has been shown by Martinek and Johnson (1979), and Martinek (1981). In their study of effects on dyadic interaction and self-concept in elementary age children, Martinek and Johnson (1979) requested physical education teachers to rate their students on expected level of achievement. Teachers were asked to assign a number from seven (very high achievement) to one (very low achievement) to each student that "most appropriately reflected the teacher's expectation for that individual student" (pp. 62-63). Martinek (1981) used a similar procedure to ascertain stability of teacher expectancy ratings. Results from those studies appear to support the findings of an Evertson, Brophy, and Good (1972) study of classroom teacher's expectancy ratings.

Differential teacher behavior toward students rated or perceived as high and low achievers or for whom the teacher had high or low expectations is well documented. Chaikin, Sigler, and Derlega (1974) and Page (1971) found that teachers smiled and nodded more often at students they believed bright. Kester and Letchworth (1972) found teachers more supportive and friendly toward high expectancy students. Rowe (1974) found that bright students were given longer to respond before the teacher redirected unanswered questions to other students. Luce and Hoge (1978) found that students who were ranked low in motivation were "provided with low levels of self-reference interaction and high levels of procedural, behavioral, and criticism interactions" (p. 499).

Sources of expectations are as varied as teacher behaviors. Feshback (1969) and Crowe (1977) found that sex of the teacher was a factor. According to Feshback (1969), female teachers were favorably biased toward girls and unfavorably biased toward boys. Crowe (1977) found that male and female physical



education teachers tended to expect better physical performance from males than females. Physical attractiveness also appears to affect teachers' expectations about students (Clifford & Walster, 1973). Dworkin and Dworkin (1979) believed that innocent banter about students in the teachers' lounge may be converted to expectations. Rist (1979) found that kindergarten teachers grouped students according to socioeconomic status.

It would appear that "teacher expectations serve not only to control behavior, but they can ultimately decrease the likelihood of success" (Martinek, Crowe, & Rejeski, 1982, p. 110). Citing Dweck, Goetz, and Strauss (1980), Seligman (1975), and Overmier and Seligman (1967), Martinek, et al. (1982) described the process of learned helplessness. In their words, "if expectations are communicated and perceived over a long period of time, a feeling of helplessness becomes a part of the individual's personality" (p. 110). The end result is that "no matter how hard the student tries or doesn't try, the interpretation of results by the teachers will always be the same" (p. 111). Consequently, students adopt a "what's the use" complex (p. 111).

In an extensive study of teacher expectations, Brophy and Good (1974) distinguished "three general types of teachers with regard to expectation effects: proactive teachers, passive or reactive teachers, and overreactive teachers" (p. 115). Proactive teachers use their expectations in planning for individualized instruction, and take and maintain the initiative in interaction with students. Reactive teachers seemingly allow students to establish teacher-student interactions in the classroom. Overreactive teachers appear to favor students that demonstrate good performance or desirable classroom behaviors and to reject students that demonstrate the opposite of those behaviors (pp. 115-116). Of

the three types, proactive teaching appears to be closely aligned with the concept of invitational teaching.

According to Purkey (1978), "invitational teachers see something in students that students may not see in themselves, and they invite students to share in those perceptions" (p. 16). This outlook appears to be what Jourard (1968) meant when he indicated that teaching is a way of being with people. It also appears to have influenced Martinek et al. (1982) to say "despite the fact that many students may be less able to learn or perform, their levels of aspiration can remain high if they are continually provided opportunities to be involved" (p. 128).

Purkey's early definition (1978) that an invitation "is a summary description of messages—verbal and nonverbal, formal and informal—transmitted to students with the intention of informing them they are responsible, able, and valuable" (p. 3) provided impetus for Inglis (1976) to define an inviting teacher (I-Type).

According to her (Inglis, 1976), the inviting teacher

specializes in invitations. While most teachers send invitations, those sent by I-Type teachers are different. They are based on high positive regard for the autonomy, value and ability of students. The invitations of I-Type teachers are genuine, and they are transmitted with unusual skill, developed to proficiency by practice and experience. (p. 19)

More recently, Purkey and Novak (in press-a) have written that invitations are messages or signals that take "countless forms and deal with all areas of human interaction" (p. 5). These messages or signals are "created by people, places, and policies" (Purkey, 1982, p. 1). According to Purkey and Novak (in press-a),

an "inviting message" is a summary description of the content of communications transmitted by people, places, policies and programs which presents something beneficial for consideration and acceptance . . . that students have opportunities to participate meaningfully in worthwhile activities, and that they are invited to take advantage of those opportunities. (p. 6)

For several years invitational teaching focused on identification of four levels of inviting/disinviting teacher behavior. Purkey (1978) perceived teachers as functioning at intentionally disinviting, unintentionally disinviting, unintentionally inviting, and intentionally inviting levels (pp. 17-20). Optimally, intentionally inviting was perceived as the level to which teachers should aspire. At this level teachers were thought to be explicit in their invitations, which allowed for evaluation, direction, and modification (Purkey, 1978).

At this intentionally inviting level, teachers may have better control over the messages sent to and received by students and may be able to determine whether a student perceived the message as inviting or disinviting (Turner & Purkey, in press-b). According to Novak (1978), the "invitational teacher . . . is an individual who . . . intends to enhance his/her student's concept of themselves through use of personalized skillful invitations" (p. 5). It may have been a similar sentiment which led Inglis (1976) to identify the factors of care and respect as being symbolic of inviting teacher behavior.

Novak (1980) recognized the need for a growth scheme for the inviting teacher. He put forth the idea of six levels of teaching through the addition of a fluently inviting and fluently disinviting level (1980, pp. 5-6). According to Novak (1980), fluently inviting or disinviting refers to messages that are transmitted with skill and dexterity and intended to inform students that they are valuable, responsible, or capable; or the opposite if the teacher is disinviting (pp. 5-6).

In his perspective, the fluently inviting level may be attained through a process of steps, by levels, which are outlined below:

Pre-active level (before coming in contact with students)

"Wanting to" (be inclined to intentionally invite).

Preparing the setting.

Interactive level (while in contact with students)

Developing trust.

Reading the situation.

Making invitations attractive.

Checking reception of invitation.

Negotiating

Handling rejection.

Post-active (after coming in contact with students)

Following through on invitations.

Accepting and acknowledging invitations received (Novak, 1980, pp. 6-10).

That scheme served as the beginning for the development of what Purkey, Schmidt, and McBrien (1982) call the "inviting process":

1. Wanting to.
2. Developing trust.
3. Reading the situation.
4. Sending the invitation.
5. Checking the situation (p. 86).

Novak's scheme (1980) has been finalized into what he and Purkey (in press-a) term inviting skills:

Being Ready

Preparing the environment

Preparing oneself

Being With

Developing trust

Reaching each student

Reading Situations

Making invitations attractive

Insuring delivery

Negotiating

Handling rejection

Following through (pp. 86-108).

As intentionality is a major referent of inviting teacher behavior, some (Schmidt, 1981; Turner, 1980) voiced concern over the use of fluency as a descriptor for inviting/disinviting behavior. In essence, the belief was that fluency connotes a skill requiring little thought. As inviting teaching requires conscious thought and effort, the use of fluency appeared to reduce intentionality (Schmidt, 1981; Turner, 1980). According to Purkey and Novak (in press-a), an inviting teacher may attain an artfully inviting level (Note: the term artfully is credited to Dr. Timothy Gerber).

According to Russell, Purkey, and Siegel (1982), the "artfully inviting teacher is one who is optimally successful in guiding and facilitating student development—social, emotional, physical, and intellectual" (p. 35). Through use of a hierarchy of strategies ranging from lower to higher intensity invitations and from personally to professionally inviting, teachers may attain and maintain the artfully inviting level (Turner, 1982). "The artfully inviting teacher . . . is one who creates an active learning environment in which students can recognize the full range of their abilities" (Russell et al., 1982, p. 35).

As mentioned, a hierarchy of strategies (Russell et al., 1982) is believed to exist for invitations and professional growth. Purkey (1978) and Purkey and Novak (in press-a) perceive four areas in that process:

Area One: Inviting yourself personally. This area is perceived as the capability of each person to recognize that some diversion from the job is needed. Area One centers on self-maintenance; i.e., rest, relaxation, exercise, and engaging in non-job-related activities.

Area Two: Inviting others personally. This area is perceived as the social aspect of inviting teaching. It is in this area that winks, nods, smiles, and compliments are displayed toward students. Also, in Area Two, teachers indicate that they care for and respect students.

Area Three: Inviting yourself professionally. Emphasis in this area is on upgrading teacher skills and knowledge through attendance of professional meetings, in-service activities, reading professional materials, and, in general, staying on "the cutting edge" in one's field.

Area Four: Inviting others professionally. This area is attained and maintained through building on the other three areas. Here, the artfully inviting teacher realizes that not all invitations will be accepted or acted on, and that rejection will be displayed by some students. Because of this knowledge, the teacher operating in Area Four will seek alternative ways through which the intentional invitation may be transmitted. Also, a teacher functioning in this area may recognize that he or she is not infallible (Purkey, 1983; Purkey & Novak, in press-a; Turner, 1982).

According to Purkey (1983)

the artfully inviting teacher is one who can balance the demand of the four areas and can integrate beliefs and behaviors in all four areas, thereby facilitating optimal personal and professional development in self and others. (p. 3)

To date, only a few studies have investigated the concept of inviting teaching (Gerber, 1982; Inglis, 1976; Lambeth, 1980). Inglis (1976) designed the

Inviting-Noninviting Scale (IN-Scale) to measure student perceptions of inviting-effective teaching behaviors. Lambeth (1980) used the IN-Scale to investigate I-Type and E-Type teacher behaviors in a secondary setting of general/technical subjects. Siegel, Gerber, and McBrien (1981) developed the North Carolina Invidex to identify the characteristics of invited and disinvited middle and junior high school students.

Inglis (1976) found a significant positive relationship to exist between each of the factors—caring, respect, course organization, interpersonal contact, and learning environment—of the IN-Scale. Subsequently, she believed the results of that analysis indicated a relationship between I-Type and E-Type teacher behaviors as contained in the scale. Inglis (1976) found that students who reported receiving high grades in the course also reported high I-Type and E-Type teacher behavior scores. This trend also held for relationships between teacher behaviors and student reports as to how hard they worked and how much they learned in the course. Of the five factors, only respect did not significantly correlate with teacher behaviors and student report of how much they learned.

Inglis (1976) also found that general-education teachers received higher I-Type and E-Type behavior scores than did technical-education teachers (pp. 71-78). In conclusion, Inglis (1976) stated "the research indicates that teachers exhibit behaviors that create environments highly related to academic achievement of their students" (p. 81).

Lambeth (1980) used the IN-Scale (Inglis, 1976) to investigate I-Type and E-Type behaviors of general and technical subject teachers in a secondary-school setting. Her findings confirmed those of Inglis (1976). Of significance in the Lambeth (1980) study was that students perceived I-Type and E-Type

teacher behaviors as related to the amount of effort expended by students in a course, but that these behaviors were less related to their effort than it was to their learning and grades received (p. 85). Lambeth (1980) also found that there were sets of behaviors significantly related to student achievement, including I and E-Type, an E-Type set, and an I-Type set (p. 87). Subsequently, she stated that "teachers need to exhibit combinations of behaviors, rather than single behaviors, to impact student achievement significantly" (p. 87).

The North Carolina Invidex (Siegel et al., 1981) was designed to ascertain data which might be useful to guide middle and junior high school teachers in improving their inviting teacher behaviors. An additional purpose of the instrument was to identify the characteristics of invited and disinvited young adolescents in those grade levels.

The Invidex is composed of eight parts. Gerber (1982) presented data from four of those parts collected from a junior high school. A total of 78 seventh, eighth, and ninth grade students participated in that field test (p. 3). Gerber (1982) reported that the sample population was too small for generalized conclusions to be drawn. Even so, based on the highest and lowest ranking of mean scores, some information of interest was presented.

Part II of the instrument deals with information about how students feel in school. Seventh, eighth, and ninth grade females and eighth grade males reported that they often feel responsible. Eighth grade males indicated that they often like to take risks. Seventh grade females and ninth grade males reported that they often have a feeling of belonging in school. According to the seventh grade males they often liked to work with others in school.

Part III centers on student reports of teacher behavior. Males and females in all three grade levels reported that their teachers often call them by name.



Conversely, eighth grade males reported that their teachers rarely talked to them personally. Eighth grade males also indicated that their teachers rarely said good things about them to others.

Part IV of the Invidex is concerned with information about the students' school. Ninth grade males reported feeling safe at school. Seventh, eighth, and ninth grade females reported school as the place where they learn many important things. From Part V, how students feel about themselves, it was ascertained that seventh grade females and eighth and ninth grade males felt they are able to do many things (Gerber, 1982, pp. 6-9).

Inviting teacher centers on all the verbal and nonverbal messages transmitted to students by their school environment (Inglis, 1976; Purkey, 1978; Purkey & Novak, in press-a). Teachers that transmit messages to students that they are able, valuable, and responsible are thought to be inviting (Inglis, 1976; Purkey, 1978; Purkey & Novak, in press-a).

### Summary

This review identified certain teacher characteristics and behaviors which have been classified as effective by both theorists and researchers. The review also presented information on the concept of invitational teaching as presented by Purkey.

Much of the research on effective teaching and all on inviting teaching has been accomplished through use of instruments designed for student response. These methods of data collection are considered to be high-inference instruments (Silvernail, 1979) and are not perceived by Locke and Siedentop (in Graham, 1981) as being teaching research. Conversely, Medley (1972) noted that student perceptions provided more accurate information than expert judges in identifying traits of teachers.

None of the reports of effective or inviting teaching reviewed appeared to be experimental research seeking to establish cause-and-effect relationships. Most of the studies were descriptive, seeking only to determine the degree of relationship between a specific teaching style and certain pupil outcomes. According to Silvernail (1979) "correlational findings do reveal which teaching styles are accomplished by pupil learning and consequently suggest strategies teachers can use to improve their effectiveness" (p. 9).

### CHAPTER III

#### PROCEDURES

In this chapter are described the procedures used in the study. It consists of four sections. In the first section are described the sources of data and how those sources were derived. Next, is a discussion of the instrument. In the third section, the collection of data is presented. The final section contains a description of the data analysis.

#### Sources of Data

The major purpose of this study was to determine the relationship of I-Type and E-Type behaviors of physical education teachers (grades 9-12) as perceived and reported by their students. To accomplish this purpose, it was necessary to locate one or more public school systems that would permit conduct of the research within their schools.

Initially, permission to conduct the research was requested of a large public school system in North Carolina. The request was denied. Subsequently, a request to conduct research was submitted to two public school systems in southern Virginia. Permission was granted by both systems. All high schools in each system contained the desired grade levels (9-12).

According to the provisions of the approval from the two school systems, the investigator contacted the principal of each high school to explain the nature of the study and to request permission to conduct research in the respective school. Once the principal's permission had been secured, a time for meeting with physical education teachers at the participating schools was

established. The purpose of that meeting was to explain the study, to determine volunteer teachers, to distribute materials relevant to the study, including an Informed Consent Form explaining the rights of human subjects in research, and to establish a date for administering the instrument to volunteer students from one class of each participating physical education teacher.

Three high school principals from the two school systems gave their permission for the investigator to meet with the physical education teachers of their schools. Fifteen physical education teachers from the three high schools volunteered to become participants in the study.

The selection of the one physical education class for each teacher to which the IN-Scale was to be administered was determined by the investigator and the participating teacher. This selection was guided, in part, by the investigator's teaching schedule. As a result, first and fourth period classes constitute the majority of the sample. A further limitation in the selection of sources of data was that two of the three high schools did not offer physical education classes beyond the tenth grade. Hence, tenth grade classes represent a majority of the sample. Even so, one physical education class from each school period (1-5) and all grade levels, except 11, are contained in the sample.

### Instrument

The IN-Scale (Appendix A) is a Likert-type instrument designed by Inglis (1976). Respondents select one of five categories of response for each item; "strongly agree," "agree," "undecided," "disagree," "strongly disagree." Positive statements are scored 5, 4, 3, 2, and 1. Negative statements are scored 1, 2, 3, 4, and 5.

All items of the IN-Scale were derived from a synthesis of the literature on effective and invitational teaching (Inglis, 1976). After identification of 68 items by this process, Inglis submitted the list to a panel of five expert judges. They rated each item as to type of teaching behavior (invitational or effective) (Inglis, 1976). Upon receipt of this information all variables were subjected to an item analysis using the Split-Half and Kuder-Richardson procedures, to determine the reliability of the scale by internal consistency scores.

Item reliability testing was accomplished by administering the IN-Scale to a sample population of 113 students. The test reliability of the entire instrument, using the Kuder-Richardson method, calculated to 0.97. The reliability for I-Type behavior items was 0.93 and that for E-Type behaviors was 0.89 (Inglis, 1976).

The instrument was further subjected to a factor analysis to determine if factor loading would identify I-Type and E-Type variables as agreed upon by the expert judges. According to Inglis "five hypothetical factors appeared; two factors of I-Type teaching behavior and three factors on E-Type teaching behaviors" (1976, p. 46). The two factors of I-Type teaching behavior were designated caring and respect. The three factors of E-Type teaching behavior were labeled course organization, interpersonal contact, and learning environment. The results of the factor analysis indicated that several items appeared as I-Type and E-Type factors which were not identified as such by the panel of judges. These items were submitted to a second panel of seven expert judges. If six of the seven judges agreed upon an item it was included in the revised IN-Scale. These procedures resulted in a reduction of the original 68-item scale to the present 50-item IN-Scale.

The 50-item IN-Scale was administered to a sample population of 55 respondents. Table 1 was compiled from several tables (Inglis, 1976, pp. 61-65).

Indicated is the test reliability of each factor of the revised IN-Scale.

Table 1

Test Reliability of  
IN-Scale Factors

N = 55

Factor	n	Average Score	Variance	Standard Deviation	K-R Factor Reliability
I (Caring)	19	71.25	198.77	14.09	0.93
II (Respect)	7	24.58	12.78	3.57	0.67
III (Course Organization)	5	19.25	12.15	3.48	0.58
IV (Interpersonal Contact)	9	28.94	25.57	5.25	0.87
V (Learning Environment)	10	43.14	88.92	9.43	0.91

(Inglis, 1976, pp. 61-65)

As indicated, reliability of the five factors of the IN-Scale varied from 0.58 to 0.93. Inglis (1976) concluded that the "IN-Scale factors are reliable and valid" (p. 61).

Twenty-six of the 50 items of the IN-Scale measure I-Type teaching behaviors and 24 items measure E-Type teaching behaviors. (A list of items, by factor, is contained in Appendix A). These two major categories are further subdivided into the five factors shown in Table 1.

The instrument was tested by Inglis in a postsecondary setting in a general/technical subjects area (Inglis, 1976). She found that a significant positive relationship did exist between all factors with correlation coefficients ranging

from .56 to .78. Lambeth (1980) used the IN-Scale in a secondary setting of general/technical subjects. She found a significant positive relationship to exist between all factors of the instrument with correlation coefficients ranging from .44 to .67.

At the suggestion of the principal in whose school she collected her data, Lambeth (1980) explained certain words of the instrument prior to administering the IN-Scale. The meanings given those words by Lambeth (1980, p. 46) appeared not to influence the intent of the items in which they were located or the reliability of the instrument as her findings were similar to Inglis (1976). As this study's sample was also from secondary schools, those meanings were incorporated in the instrument for use in this study.

#### Data Collection

During February and March, 1982, the investigator met with physical education teachers of the three high schools to be used in the study. The purpose of those meetings was to explain the nature of the study, to ascertain volunteer teachers, and to select one physical education class of each participating instructor to be used in the study.

At those meetings all teachers were informed of their rights as human subjects in research and were provided an Informed Consent Form to be signed after reading and understanding those rights (Appendix B). Also, volunteer teachers were given the Teacher Rating of Student Expected Physical Performance (Appendix C) which was to be completed prior to and returned to the investigator on the date of administration of the IN-Scale to one selected class of each participating teacher. Additionally, volunteer teachers were provided a letter to parents, with an attachment (Denial of Parental Permission

Form) (Appendix D). The letter and attachment were to be distributed by the teacher to all students in the selected class. Members of this class were requested by their teachers to take those materials home for parental perusal and necessary action.

As the sample of this study was not the same as previously investigated (Inglis, 1976; Lambeth, 1980), checking for reliability was deemed advisable. The test-retest procedure was chosen for obtaining the data. One physical education teacher and one class were used for this purpose. Selection of this teacher and class was accomplished during the meeting with physical education teachers at the first high school visited by the investigator.

On February 11, 1982, the investigator met with the volunteer teacher and students in the selected physical education class. The teacher returned the signed Informed Consent Form, presented the investigator to the class, and moved to another location in the gymnasium to await arrival of nonvolunteering students.

The investigator requested any student with a signed Denial of Parental Permission Form to join the teacher. The investigator then explained the purpose of the study, informed students of their rights as human subjects in research, and requested any student not desiring to be a volunteer participant to join the teacher. Following this, the instrument, the answer sheet, pencils, and Student Informed Consent Forms (Appendix E) were distributed to the remaining class members.

The investigator read the instructions for completing the IN-Scale to the students, instructed them on how to complete the information on the answer sheet, and requested that students read, sign, and date the Student Informed



Consent Form. Further, the volunteer students were informed that the investigator was available to answer any questions concerning the instrument or the answer sheet. Students then completed the answer sheet before returning it, the instrument, and the signed Informed Consent Form to the investigator. These same procedures were followed on the retest date (February 16, 1982) and on all other data collection dates.

A total of 49 IN-Scale Answer Sheets were completed during the test-retest processes. As is shown below, only 11 matched pairs of answer sheets were usable. The following is a distribution of the 27 unusable answer sheets from the combined administration.

Absence from either test or retest:	18
Failure to answer an item:	8
Double answer to same item:	<u>1</u>
N =	27

Statistical analysis of the test-retest was accomplished by using Pearson Product Moment Correlation procedures. Testing for significance was at the .05 alpha level and verified by using the Table of Critical Values of the Pearson Correlation Coefficient (two-tailed test) (Roscoe, 1975, p. 438).

In Table 2 is indicated the relationship among the test-retest on the total items, the 26 I-Type behaviors and the 24 E-Type items. Presented in Table 3 are the mean, variance, and standard deviation for the total items, I-Type items and E-Type items for the test-retest scores. The relationships among the test-retest data for the five factors are presented in Table 4.

The results of the test-retest data analyses indicated that the instrument was satisfactory for use with the sample and subject area of the study. Additional credence was given to the instrument for use in the secondary environment and this study as the test-retest class was composed of ninth grade students.

Table 2  
Correlation of IN-Scale  
Test-Retest

N = 11

	Total Items	I-Type Items	E-Type Items
Test-Retest	.798**	.811**	.642*

r .05, 10df = .576

\*\*Significant at .01 alpha

\*Significant at .05 alpha

Table 3  
Mean, Variance, Standard Deviation  
Test-Retest

N = 11

	Total Items		I-Type Items		E-Type Items	
	Test	Retest	Test	Retest	Test	Retest
Mean	192.27	192.65	97.27	97.65	95	95
Variance	323.83	340.41	127.11	172.41	58.18	37.18
Standard Deviation	17.99	18.45	11.27	13.13	7.63	6.16

While the sample for the test-retest was small, the results as shown in Tables 2 and 4 indicated that a significant positive relationship did exist among the total items, I-Type behaviors, E-Type behaviors and a majority of the five factors contained in the IN-Scale. Only the factor "learning environment" did not show a significant relationship.

Table 4  
Correlation of IN-Scale Factors  
Test-Retest

N = 11

	Caring	Respect	Course Organ.	Interper. Contact	Learning Environ.
Caring	.81**				
Respect		.62*			
Course Organization			.71**		
Interpers. Contact				.72**	
Learning Environment					.48 n.s.

r.05, 10df = .576  
n.s. Nonsignificant

\*\*Significant at .01 alpha  
\*Significant at .05 alpha

Similar procedures for data collection as explained in the earlier part of this section were followed with all participating teachers and their classes, except where those classes were in a classroom rather than the gymnasium. In those situations, those students presenting Denial of Parental Permission Forms or who did not volunteer to participate in the study were requested to quietly involve themselves in other academic work. Teachers of those classes excused themselves from the room, returning after an absence of 20 minutes. This process worked well with no problems of unrest or discipline encountered.

Throughout the data collection period (February and March, 1982) few questions were raised by participating students concerning meanings of words or items of the IN-Scale. The investigator was requested to explain or clarify

the following items by an extremely small percentage of the students completing the instrument:

Item

2. The style of teaching in this class is democratic.

14. The teacher sees me as a co-worker on a common problem.

30. The teacher seldom makes personal contact with me in the class.

In general, explanation was requested as to "what does democratic mean"; "what does co-worker mean"; and "what do you mean by personal contact."

The investigator's response to those questions was as follows:

democratic: You feel as though you have some say as to how the class is run.

co-worker: You feel as though you and the teacher are working together in your learning of the material for this class.

personal contact: The teacher talks to you and not to the whole class and in a way that you know is not critical or disciplinary.

Due to the small number of requests for assistance, the changes incorporated from the Lambeth (1980) study may be viewed as enhancing the strength of the instrument for use in the secondary setting.

A total of 206 usable IN-Scale Answer Sheets from 14 physical education classes, grades 9-12, were collected. Table 5 indicates the distribution of the data collected in this study.

Data Analysis

The statistical methods selected to facilitate both the analysis and the interpretation of the data were Pearson Product Moment Correlation and One-

Way Analysis of Variance. These methods were applied to the eight questions posed in Chapter 1 as follows:

1. Pearson Product Moment Correlation was used to test the hypotheses posed by questions 1, 4, 5, 6, and 8.
2. One-Way Analysis of Variance was used to test the hypotheses posed by questions 2, 3, and 7.

In addition, Pearson Product Moment Correlation techniques were used for the test-retest and verification processes. Determination of combination categories of inviting/disinviting and effective/noneffective behaviors was accomplished by establishing a median score from the distribution of I-Type and E-Type behavior scores.

All raw data were analyzed using a Wang computer and the appropriate program designed for the selected statistical procedures. To retain or reject the eight questions in Chapter I, they were converted to statements of null hypotheses as follows:

1. There is no significant relationship between I-Type and E-Type behaviors of physical education teachers as reported by students.
2. There is no significant relationship between I-Type and noneffective behaviors of physical education teachers as reported by students.
3. There is no significant relationship between disinviting and E-Type behaviors of physical education teachers as reported by students.
4. There is no significant relationship between disinviting and noneffective behaviors of physical education teachers as reported by students.
5. There is no significant difference between I-Type and E-Type behaviors of physical education teachers as reported by high and low expectancy students.

6. There is no significant difference between I-Type and E-Type behaviors of physical education teachers as reported by athletes and nonathletes.

7. There is no significant difference between I-Type and E-Type behaviors of physical education teachers according to student reports as to how hard they worked and how much they learned.

8. There is no significant relationship between I-Type and E-Type behaviors of physical education teachers on total score of the IN-Scale and how students respond to the statement "this is the most inviting and effective physical education teacher I have ever had."

All testing for retention or rejection of the null hypotheses was at the .05 alpha level of significance. As the Wang computer used to analyze the data does not indicate a test of level of significance, the appropriate critical value and F-distribution tables contained in Roscoe (1975) were used to obtain that information.

Table 5  
Summary of Teachers, Students  
and Grade Levels

N = 206

Teacher	Students	Grade Level	Period
T <sub>TR</sub>	11	9	1
T <sub>1</sub>	17	9	5
T <sub>2</sub>	17	10	4
T <sub>3</sub>	10	10	5
T <sub>4</sub>	10	9	4
T <sub>5</sub>	20	10	4
T <sub>6</sub>	12	10	1
T <sub>7</sub>	10	10	4
T <sub>8</sub>	15	12	1
T <sub>9</sub>	22	10	1
T <sub>10</sub>	18	10	2
T <sub>11</sub>	18	10	5
T <sub>12</sub>	10	10	2
T <sub>13</sub>	8	12	3
T <sub>14</sub>	19	10	1

T<sub>TR</sub>: Teacher Test-Retest

N = 217

T<sub>1-14</sub>: Teacher 1-14

-11 Test-Retest  
206

## CHAPTER IV

### ANALYSES AND DISCUSSION OF THE DATA

The results of the analyses of the data are organized into three parts. The first is a presentation of the relationship between inviting (I-Type and effective (E-Type) teacher behavior. Next is a discussion of the difference between how high/low expectancy students and athletes/nonathletes view physical education teachers with respect to inviting and effective behaviors. The third part are analyses of the data concerned with how hard students work and how much they learn in physical education classes. Also, analyses are presented in this latter part concerning responses to the statement: "this is the most inviting and effective physical education teacher I have ever had." All hypotheses were tested statistically and retained or rejected using the .05 alpha level to determine significance.

Fourteen physical education teachers (8 male, 6 female) volunteered to participate in the study (students in only one class for each teacher served as subjects). A total of 206 students (109 male, 97 female) completed the IN-Scale (Inglis, 1976).

#### Relationship of Inviting and Effective Behaviors

Previous investigations of the relationship between inviting and effective teacher behaviors were concerned with relationships between the five factors comprising the two major categories of the IN-Scale (Inglis, 1976; Lambeth, 1980). Inglis (1976) found that a significant positive relationship did exist among all factors (I-Type: caring and respect; E-Type: course organization, interpersonal contact, and learning environment) with correlation coefficients



ranging from .56 to .78. Lambeth (1980) found similar significant positive relationships among all factors with correlations ranging from .44 to .67. The results of those studies and the test-retest used in this study suggested the possibility of a relationship between the total scores of I-Type and E-Type teacher behaviors. One of the purposes of this study was to verify that relationship.

Analyses of the data lend credence to the possibility that a significant positive relationship did exist between total scores of inviting and total scores of effective teacher behaviors. The data presented in Table 6 indicate a statistically significant relationship ( $r = .84$ ) between total scores of I-Type and E-Type behaviors.

As shown in Table 6, the means of the two major categories of behavior are relatively close. It was noted that the variance of I-Type behaviors scores was greater than that for the E-Type behavior scores.

Table 6  
Correlation of I-Type & E-Type Behaviors

N = 206

	r	Mean	Variance	Standard Deviation
I-Type	.84**	96.55	226.69	15.06
E-Type		95.99	134.59	11.60

$r .05, 100df = .195$

\*\*Significant at .01 alpha

The results indicate that there is a significant positive relationship ( $r = .84$ ) between the total scores of I-Type and the total scores of E-Type behaviors. This indicates that the behaviors contained in the factors of care

and respect (I-Type) are related to the behaviors contained in the factors of course organization, interpersonal contact, and learning environment (E-Type).

In addition to investigating the possibility of a relationship between the two major categories of behavior (inviting and effective), this study sought to determine whether students perceive their physical education teachers as demonstrating a combination inviting/effective behavior. Inglis, in her dissertation proposal, had indicated that teachers may be perceived as behaving in inviting-effective, inviting-noneffective, disinviting-effective, and disinviting-noneffective ways toward students. She had also proposed the use of a median score to establish those categories of behavior. While Inglis did not pursue that aspect of her proposal, this investigator believed it to be a worthwhile endeavor. Therefore, several questions were posed addressing the relationship between those combination categories established through the use of a median score.

In analyzing the distribution of I-Type and E-Type scores (Appendices F and G) of the 206 respondents, and using the formula to determine a median score (Roscoe, 1975, p. 59), it was determined that 97.17 was the median score for I-Type behaviors. The median score for E-Type behaviors was 97. Consequently, all teachers receiving a score above the median were classified inviting and effective. This method of classification was used to determine the various combination categories of teacher behavior.

Table 7 shows the results of scores reported by students in the combination categories of I-Type and E-Type teacher behaviors. Of the 206 student respondents, 84 (41%) perceived their physical education teachers as demonstrating disinviting-noneffective behaviors. Conversely, 82 (40%) students reported

their teachers as being inviting-effective. The remaining categories, inviting-noneffective and disinviting-effective, each contained 16 students that classified their teachers as being in those categories of behavior. Two additional categories, inviting-median and disinviting-median, were created by eight effective behaviors scores being equal to the median score (97) for E-Type behaviors.

Further analyses revealed that six of the fourteen physical education teachers were perceived by 50% or more of their students as being disinviting-noneffective. Four teachers were reported to be inviting-effective by 50% or more of their students. Of the remaining teachers, two were considered as exhibiting disinviting-noneffective behavior by more of their students and two were seen as inviting-effective by more students.

It was interesting to note that of the two ninth grade classes participating in the study one reported its teacher as disinviting-noneffective and the other perceived its teacher as inviting-effective. In the Commonwealth of Virginia, physical education is an elective subject in the eleventh and twelfth grades. Twelfth grade students may be enrolled in physical education because they like it and may perceive physical education teachers in more positive ways than students in grades nine and ten, where physical education is a required subject.

The use of a median score to determine the combination of behavior categories appeared satisfactory for this exploratory study of inviting and effective teacher behavior in the physical education environment. It provided the vehicle to expand on previous research (Inglis, 1976; Lambeth, 1980) and as a method of investigating combinations of inviting and effective teacher behavior.

Table 7

Distribution of Student Response  
by Combination Behavior Categories

Grade	I-E	%	I-NE	%	DI-E	%	DI-NE	%	I-M	%	DI-M	%	Total	%
9-1	5	29	1	6	1	6	10	59	0	0	0	0	17	100
9-2	5	50	1	10	0	0	4	40	0	0	0	0	10	100
10-1	8	47	2	12	0	0	5	29	1	6	1	6	17	100
10-2	1	10	1	10	2	20	6	60	0	0	0	0	10	100
10-3	7	35	0	0	3	15	10	50	0	0	0	0	20	100
10-4	4	33	0	0	0	0	6	50	0	0	2	17	12	100
10-5	2	20	1	10	2	20	5	50	0	0	0	0	10	100
10-6	9	41	2	9	1	5	10	45	0	0	0	0	20	100
10-7	9	50	2	11	3	17	4	22	0	0	0	0	18	100
10-8	7	39	3	17	2	11	3	17	3	17	0	0	18	100
10-9	3	30	0	0	0	0	7	70	0	0	0	0	10	100
10-10	6	32	3	16	1	5	9	47	0	0	0	0	19	100
12-1	9	60	0	0	1	7	5	33	0	0	0	0	15	100
12-2	7	88	0	0	0	0	0	0	1	12	0	0	8	100
N =	82	40	16	8	16	8	84	41	5	2	3	1	206	100

I-E: Inviting-Effective

DI-E: Disinviting-Effective

I-NE: Inviting-Noneffective

DI-NE: Disinviting-Noneffective

I-M: Inviting-Median

DI-M: Disinviting-Median

The following four tables (8, 9, 10, and 11) show the results of the analyses of the data pertaining to the categories of teacher behavior identified as inviting-effective, inviting-noneffective, disinviting, effective, and disinviting-noneffective. Included in each are the correlation coefficient, mean, variance, and standard deviation.

Eighty-two students (40%) of the 206 respondents reported physical education teachers as demonstrating both inviting and effective behaviors. A significant positive relationship ( $r = .59$ ) did exist between the two variables of this category. The results show that while the means are relatively close, there was greater variability of I-Type scores than E-Type.

From a higher percentage viewpoint, not a majority, six teachers were considered as being inviting-effective. These teachers taught two of the twelfth grade, three of the tenth grade, and one of the ninth grade classes. The results further indicate that those 82 students perceive physical education teachers as being caring and respectful. They also tend to view their teachers as displaying positive behaviors in the factors of course organization, interpersonal contact, and learning environment.

Table 8

Correlation of Inviting and Effective Behaviors  
Within the Inviting-Effective Combination Category

N = 82

	r	Mean	Variance	Standard Deviation
Inviting	.59**	110.29	66.35	8.15
Effective		106.59	29.83	5.46

$r .05, 80df = .217$

\*\*Significant at .01 alpha

As a significant positive relationship ( $r = .59$ ) did exist between inviting-effective teacher behaviors, the null hypothesis, there is no significant relationship between inviting-effective behaviors of physical education teachers was rejected; the alternative hypothesis was retained.

As shown in Table 9, there was not a significant relationship found to exist between the variables inviting-noneffective. The means were divergent. However, the variability of I-Type behaviors was not as large as previously noted.

Table 9  
Correlation of I-Type and Noneffective Behaviors  
Within the Inviting-Noneffective Combination Category

N = 16

	r	Mean	Variance	Standard Deviation
Inviting	-.007	102.07	22.73	4.77
Noneffective		92.80	11.36	3.37

$r_{.05, 15df} = .482$

Nine of the physical education teachers were perceived as displaying inviting-noneffective behaviors by one or more of their students. From the point of view of those students their teachers demonstrate caring and respectful behaviors toward students but do not display effective behaviors in the factors of course organization, interpersonal contact, and learning environment.

As no significant relationship was found to exist, the null hypothesis, there is no significant relationship between inviting-noneffective behaviors of physical education teachers, was retained.

The data shown in Table 10 indicates that no significant relationship was found to exist between disinviting and effective behaviors of teachers. As in the case of the inviting-noneffective category, the means were widespread and the variance of both behavior categories was small.

Table 10  
Correlation of Disinviting and E-Type Behaviors  
Within the Disinviting-Effective Combination Category

N = 16

	r	Mean	Variance	Standard Deviation
Disinviting	-.10	93.47	5.66	2.38
Effective		101.29	6.80	2.61

$r_{.05, 15df} = .482$

Similar to the inviting-noneffective category, 16 students perceived nine teachers as displaying disinviting-effective behaviors. Seven of those teachers were the same ones that were considered inviting-noneffective by at least one student.

Since no significant relationship was found to exist, the null hypothesis, there is no significant relationship between disinviting-effective behaviors of physical education teachers, was retained.

The data in Table 11 shows that a significant positive relationship ( $r = .63$ ) did exist between disinviting noneffective behaviors. While the means are close, the distribution of disinviting scores had greater variability than that of the noneffective scores.

Table 11  
Correlation of Disinviting and Noneffective Behaviors  
Within the Disinviting-Noneffective Combination Category

N = 84

	r	Mean	Variance	Standard Deviation
Disinviting	.63**	82.70	97.71	9.89
Noneffective		84.92	69.69	7.94

r .05, 80df = .217

\*\*Significant at .01 alpha

Eighty-four (41%) of the students responding to the IN-Scale reported that eight (57%) of the fourteen teachers demonstrated a combination of disinviting-noneffective behaviors. Specifically, those teachers were perceived by some students as using punishment, making brief unemotional contact, being authoritarian rather than democratic, and not knowing students as persons.

It was interesting to note that at least one student in every teacher's class, except for the teacher of grade 12-2 (Table 7), perceived her or him as being disinviting-noneffective. This would appear to indicate that, with the exception of the teacher of grade 12-2, the physical education instructors participating in this study, either consciously or unconsciously, displayed disinviting-noneffective behaviors to a large number of the students responding to the IN-Scale.

As a significant positive relationship ( $r = .63$ ) did exist, the null hypothesis, there is no significant relationship between disinviting-noneffective behaviors of physical education teachers, was rejected; the alternative hypothesis was retained.



### High/Low Expectancy Students and Athletes/Nonathletes

All teachers participating in the study were requested to indicate for each student in the selected physical education class an expectation of the student's ability to perform physical skills. Thirteen of the fourteen teachers completed the Teacher Rating of Student Expected Physical Performance (Appendix C) for students enrolled in each participating class. One hundred eighty-six students were rated on a scale of 7-1. Those ratings were based on the teacher's expectations of each student's ability to perform physical skills at the beginning of the school year. The highest expectancy rating was 7 with 1 being the lowest rating.

For the purposes of this study, students receiving a rating of 6 or 7 were considered as high expectancy students. Those receiving ratings of 1 or 2 were identified as low expectancy students. Table 12 shows the distribution of the ratings of students' expected physical performance by 13 teachers.

Of the 186 students 74 were rated as either high or low expectancy in the performance of physical skills by their teachers. Fifty-six (76%) of the 74 students received ratings of 6 or 7 and were classified as high expectancy students. The remaining 18 (24%) students received ratings of 1 or 2 and thus were categorized as low expectancy students.

Of interest was the fact that the participating physical education teachers placed a majority (112) of all students in what may be considered as a neutral expectancy range (3-5). Further investigation of the data in Table 12 indicated that more than 50% (96 of 186) of all students received expectancy ratings in the 5-7 range. Only 38 students were rated in the 1-3 range. The remaining 52 students were rated at 4. The distribution of the expectancy ratings provided by the 13 teachers showed a halo effect.

Table 12  
Teacher Rating of Students'  
Expected Physical Performance

	1	2	3	Rating 4	5	6	7	Total
T <sub>1</sub>	1	0	4	8	2	2	0	17
T <sub>2</sub>	1	1	0	1	1	8	3	15
T <sub>3</sub>	3	1	3	1	1	1	0	10
T <sub>4</sub>	0	2	0	4	2	2	0	10
T <sub>5</sub>	1	2	1	3	5	3	4	19
T <sub>6</sub>	0	0	0	8	1	3	0	12
T <sub>7</sub>	0	0	1	2	3	4	0	10
T <sub>8</sub>	0	0	2	12	6	1	1	22
T <sub>9</sub>	1	1	5	4	4	3	0	18
T <sub>10</sub>	0	0	0	3	9	4	1	17
T <sub>11</sub>	0	0	0	1	2	4	3	10
T <sub>12</sub>	0	0	1	2	0	2	3	8
T <sub>13</sub>	0	4	3	3	4	2	2	18
Total	7	11	20	52	40	39	17	186

Separate one-way analysis of variance (ANOVA) procedures were performed to determine whether any difference existed between I-Type and E-Type behavior scores of physical education teachers as reported by students identified as high or low expectancy students. Tables 13 and 14 show the results of those analyses. Included in the two tables are the mean, variance, and standard deviation of each of the two major behaviors measured by the IN-Scale as reported by high and low expectancy students.

As shown in Table 13, the  $F$  value obtained (7.75) indicates that a significant difference did exist between how high and low expectancy students viewed physical education teachers on I-Type behaviors. The high expectancy group of students saw their teachers as exhibiting more inviting behaviors than the low expectancy group did.

Table 13

ANOVA of I-Type Behaviors  
High & Low Expectancy Students

N = 74

Source	Sum Squares	Degrees Freedom	Mean Square	F
Between Groups	1937.59	1	1937.59	7.75**
Within Groups	18006.43	72	250.09	
Total	199944.01	73		

$F_{.05, 1 \text{ \& } 60df} = 4.00$

\*\*Significant at .01 alpha

	High Expectancy	Low Expectancy
Mean	101.48	89.56
Variance	249.79	223.25
Standard Deviation	15.80	14.94

Since a significant difference did exist, the null hypothesis, there is no significant difference between how high and low expectancy students report I-Type behaviors of physical education teachers, was rejected; the alternative hypothesis was retained.

The  $F$  value (5.31) depicted in Table 14 indicates that a significant difference did exist between how high and low expectancy students perceived their physical education teachers on E-Type behaviors. The difference between the means of the two groups was not as widespread as for I-Type behaviors. However, the greater variance was for the low expectancy group for effectiveness.

The results of the analyses indicate that the perceptions of high expectancy students differed significantly from the low expectancy students with respect to course organization, interpersonal contact, and learning environment of their physical education teachers.

Table 14

ANOVA OF E-Type Behaviors  
High & Low Expectancy Students

N = 74

Source	Sum Squares	Degrees Freedom	Mean Square	F
Between Groups	872.65	1	872.65	5.31*
Within Groups	11831.63	72	164.33	
Total	12704.28	73		

$F_{.05, 1 \text{ \& } 60df} = 4.00$

\*Significant at .05 alpha

	High Expectancy	Low Expectancy
Mean	99.39	91.39
Variance	151.85	184.90
Standard Deviation	12.32	13.59

As a significant difference did exist, the null hypothesis, there is no significant difference between how high and low expectancy students report E-Type behaviors of physical education teachers, was rejected; the alternative hypothesis was retained.

The results of the two separate ANOVA procedures tend to indicate that high expectancy students perceive physical education teachers as being inviting and effective. Conversely, low expectancy students view physical education teachers as being less inviting and less effective.

While the number of low expectancy students is small, that they perceive physical education teachers as less inviting or disinviting and less effective or noneffective is significant as it indicates perceived different teacher behavior toward that group of students.

As a significant difference did exist in both I-Type and E-Type behaviors as reported by high and low expectancy students, the null hypothesis, there is no significant difference between I-Type and E-Type behaviors of physical education teachers as reported by high and low expectancy students, was rejected; the alternative was retained.

Another area of interest and investigation in this study was how student athletes and nonathletes perceived I-Type and E-Type behaviors of physical education teachers. Forty-two (20%) of the 206 students responding to the IN-Scale reported that they were members of an interscholastic athletic team. The remaining 164 (80%) students were classified as nonathletes. Table 15 shows the distribution of student athletes in the 14 physical education classes participating in this study, and how those athletes perceive physical education teachers in the various combination categories of I-Type and E-Type behaviors.

Table 15  
Distribution of Athletes and  
Report of I & E-Type Behaviors

Grade	I-E	%	I-NE	%	DI-E	%	DI-NE	%	I-M	%	Total	%
9-1	2	100	0	0	0	0	0	0	0	0	2	100
9-2	3	75	0	0	0	0	1	25	0	0	4	100
10-1	2	33	0	0	1	16	3	50	0	0	6	100
10-2	0	0	1	50	0	0	1	50	0	0	2	100
10-3	3	60	0	0	0	0	2	40	0	0	5	100
10-4	2	40	0	0	0	0	3	60	0	0	5	100
10-5	0	0	0	0	0	0	0	0	0	0	0	0
10-6	1	33	0	0	0	0	2	67	0	0	3	100
10-7	3	75	0	0	0	0	1	25	0	0	4	100
10-8	0	0	1	25	1	25	0	0	2	50	4	100
10-9	0	0	0	0	0	0	1	100	0	0	1	100
10-10	0	0	0	0	0	0	2	100	0	0	2	100
12-1	2	67	0	0	0	0	1	33	0	0	3	100
12-2	1	100	0	0	0	0	0	0	0	0	1	100
N =	19	45	2	5	2	5	17	40	2	5	42	100

I-E: Inviting-Effective

DI-E: Disinviting-Effective

I-NE: Inviting-Noneffective

DI-NE: Disinviting-Noneffective

I-M: Inviting-Median

In reviewing the data in Table 15, it was noted that a majority of the athletes report six teachers as inviting-effective, and four teachers as disinviting-noneffective. One teacher had no athletes in his class.

It was further noted that 19 (45%) of the 42 athletes reported teachers as inviting-effective, whereas from the total group perspective 40% of all students indicated their teachers as being in that category. Conversely, 17 (40%) of the athletes perceived teachers as disinviting-noneffective, whereas from the total group perspective 41% of all students reported teachers as being disinviting-noneffective. Also, a total of 23 (55%) of the athletes reported physical education teachers as displaying inviting behaviors, whereas from the total group perspective this was a 50-50 split. This trend also held for effective teacher behaviors as 21 (50%) of the athletes perceived teachers in that category, whereas 98 (46%) of the total 206 students reported physical education teachers as being effective.

Separate one-way ANOVA procedures were performed on I-Type and E-Type behavior scores as reported by athletes and nonathletes to determine whether any significant difference did exist between how those groups reported inviting and effective behaviors of physical education teachers. Tables 16 and 17 show the results of those analyses. Included are the mean, variance, and standard deviation for each of the two groups.

The  $F$  value (3.73) as presented in Table 16 indicates that no significant difference existed between how athletes and nonathletes viewed physical education teachers on I-Type behaviors. Therefore, one may conclude that the athletes in this study did not perceive their physical education teachers as being more inviting than was true for the nonathletes.

Table 16  
ANOVA of I-Type Behaviors  
Athletes/Nonathletes

N = 206

Source	Sum Squares	Degrees Freedom	Mean Square	F
Between Groups	839.81	1	839.81	3.73
Within Groups	45907.45	204	225.04	
Total	46747.26	205		

$F_{.05, 1 \text{ \& } 100df} = 3.84$

	Athletes	Nonathletes
Mean	100.52	95.51
Variance	215.01	224.86
Standard Deviation	14.66	14.99

The null hypothesis, there is no significant difference between how athletes and nonathletes report I-Type behaviors of physical education teachers, was retained.

As shown in Table 17, the  $F$  value (2.16) obtained from the analysis of the E-Type Behaviors indicates that no significant difference existed between how athletes and nonathletes perceived physical education teachers on E-Type behaviors. As a result, the null hypothesis, there is no significant difference between how athletes and nonathletes report E-Type behaviors of physical education teachers, was retained.

The results of the two separate ANOVA procedures tend to indicate that athletes and nonathletes view physical education teachers from a similar perspective. As was noted from Tables 16 and 17, the mean scores of athletes



in both I-Type and E-Type behaviors were higher than for nonathletes. That fact would tend to indicate that athletes perceive more inviting and effective behaviors displayed toward them than do nonathletes. While that may be the case, the analysis indicates that no significant difference existed between how athletes and nonathletes view their physical education teachers on I-Type and E-Type behaviors. Therefore, the null hypothesis, there is no significant difference between how athletes and nonathletes report I-Type and E-Type behaviors of physical education teachers, was retained.

Table 17  
ANOVA of E-Type Behaviors  
Athletes/Nonathletes

N = 206

Source	Sum Squares	Degrees Freedom	Mean Square	F
Between Groups	290.82	1	290.82	2.16
Within Groups	27434.13	204	134.48	
Total	27724.96	205		

F .05, 1 & 100df = 3.84

	Athletes	Nonathletes
Mean	98.29	95.38
Variance	104.78	140.79
Standard Deviation	10.24	11.87

#### Student Report of Effort and Acquisition

A purpose of this study was to ascertain whether there were significant differences between the perceived inviting and effective behaviors of physical

education teachers by students who were grouped according to how much they had learned and how hard they had worked. To collect that information all students were requested to respond, from "strongly agree" to "strongly disagree," on a scale of 1-5 with 5 being "strongly agree" and 1 "strongly disagree," to two questions on the IN-Scale Answer Sheet; "I learned very much in this course," and "I worked very hard in this course." A summary of responses to those statements is shown in Table 18.

Also included in the table is a summary of responses to students' reporting that they learned very much/worked very hard, learned very much/did not work very hard, did not learn very much/worked very hard, or did not learn very much/did not work very hard. The information for Table 18 was compiled by consolidating responses of "strongly agree" - "agree (5-4) and "strongly disagree" - "disagree" (1-2). A response of 3 was an indication of the student being undecided as to whether he or she had worked very hard or learned very much.

Of interest was the fact that 142 (89%) of the 158 students reporting that they had worked very hard also indicated that they had learned very much. Those same 142 students represent 81% of the 175 responding that they had learned very much. Those 142 (69%) of the total 206 students participating in the study perceived themselves as having worked very hard and learned very much in their physical education classes.

Separate one-way ANOVA procedures were used to determine whether any difference did exist between I-Type and E-Type behaviors of physical education teachers according to student reports on effort and learning in their classes. The results of those analyses are presented in Tables 19, 20, 21, and 22.

Table 18  
Distributions of Student Response To  
I Learned Very Much and I Worked Very Hard in This Course  
Question

	f	%
Worked	158	77
Did Not Work	16	8
Undecided	30	14
No Response	2	1
Total	206	100
Learned	175	85
Did Not Learn	11	5
Undecided	19	9
No Response	1	1
Total	206	100
Learned/Worked	142	89
Learned/Did Not Work	8	5
Did Not Learn/Worked	6	4
Did Not Learn/Did Not Work	3	2
Total	159	100

As indicated in Table 19, the F value (.024) shows that no significant difference was found to exist between how those students reporting that they had worked very hard and how those who stated that they had learned very much perceived their physical education teachers on I-Type behaviors. It was noted

that the mean scores of both groups were above the median score for I-Type (97.17) behaviors. Further, considerable variance of I-Type scores was noted for both groups, with those for students reporting that they worked very hard fluctuating more than for those reporting that they learned very much.

Table 19

ANOVA of I-Type Behaviors  
Learn/Work

N = 333

Source	Sum Squares	Degrees Freedom	Mean Square	F
Between Groups	4.87	1	4.87	.024
Within Groups	68166.43	331	205.94	
Total	68171.30	332		

F.05, 1 & 331 df = 3.84

	Learn	Work
Mean	98.69	98.45
Variance	192.24	218.51
Standard Deviation	13.86	14.78

The results indicate that those students reporting that they had worked very hard and those who indicated that they had learned very much view the inviting behaviors of their physical education teachers from a similar perspective. The mean score for each group shows that both are above the median score for I-Type behaviors. This indicated that students answering in the affirmative to the work and learn questions perceived their physical education teachers as being inviting.

The  $F$  value of .131 shown in Table 20 indicates that no significant difference did exist between how students reporting that they had worked very hard and how those who believed that they had learned very much perceived their physical education teachers with respect to E-Type behaviors. As was true for I-Type behaviors, the mean scores of both groups were close and slightly above the median score (97) for effective type behaviors. Also, considerable variance of scores was noted, but the difference was less than for I-Type behaviors.

Table 20  
ANOVA of E-Type Behaviors  
Learn/Work

N = 333

Source	Sum Squares	Degrees Freedom	Mean Square	F
Between Groups	15.76	1	15.76	.131
Within Groups	39674.68	331	119.86	
Total	39690.43	332		

$F_{.05, 1 \text{ \& } 331df} = 3.84$

	Learn	Work
Mean	97.66	97.22
Variance	110.45	128.77
Standard Deviation	10.51	11.35

Both groups perceived their physical education teachers similarly with regard to E-Type behaviors. Students responding in the affirmative to the work and learn statements perceived their physical education teachers as effective.

The analyses of both ANOVA's indicate that students reporting that they worked very hard and that they learned very much perceived their physical education teachers from a similar viewpoint on both inviting and effective behaviors. The mean scores for both groups for both categories of behavior were above the median scores for both I-Type and E-Type teacher behaviors. A majority of the 206 students responding to the work and learn questions viewed their physical education teachers as demonstrating the behaviors comprising the factors of care, respect, course organization, interpersonal contact, and learning environment.

As the separate ANOVA procedures revealed that no significant difference did exist, the null hypothesis, there is no significant difference between I-Type and E-Type behaviors of physical education teachers according to students who reported that they had worked very hard and that they had learned very much, was retained.

The  $F$  value (1.30) shown in Table 21 indicates that no significant difference was found to exist between how students reporting that they did not work very hard and that they did not learn very much perceived their physical education teachers on I-Type behaviors. It was noted that the scores of students reporting that they did not learn very much had less variance than did those reporting that they did not work very hard. Also, the mean scores of both groups were below the median score for I-Type behaviors (97.17).

The results indicate that students reporting that they did not work very hard and those who did not learn very much viewed the I-Type behaviors of their physical education teachers from a similar perspective. The mean scores for both groups were below the median score for inviting type behaviors. This indicated that students giving negative responses to the work and learn

statements perceived physical education teachers as demonstrating disinviting behaviors. More specifically, both groups of students reported teachers as not displaying caring and respectful behaviors.

Table 21  
ANOVA I-Type Behaviors  
Not Learn/Not Work

N = 27

Source	Sum Squares	Degrees Freedom	Mean Square	F
Between Groups	241.38	1	241.38	1.30
Within Groups	4654.61	25	186.18	
Total	4895.99	26		

$F_{.05, 1 \text{ \& } 25df} = 7.77$

	Learn	Work
Mean	74.75	80.81
Variance	85.11	232.40
Standard Deviation	9.23	15.24

The obtained  $F$  value (2.71) in Table 22 indicates that no significant difference existed between how students responding that they did not work very hard and did not learn very much perceived their physical education teachers on E-Type behaviors. Considerable variability of scores was noted, with the scores of students reporting that they did not learn very much being more varied than for those reporting that they did not work very hard. Similar to the results of the analysis of I-Type scores, the mean scores of both groups were below the median score for effective teacher behavior (97).

Table 22  
ANOVA E-Type Behaviors  
Not Learn/Not Work

N = 27

Source	Sum Squares	Degrees Freedom	Mean Square	F
Between Groups	311.68	1	311.68	2.71
Within Groups	2878.62	25	115.14	
Total	3190.30	26		

$F_{.05, 1 \text{ \& } 25df} = 7.77$

	Learn	Work
Mean	78.27	85.19
Variance	114.38	101.27
Standard Deviation	10.69	10.06

Both groups perceived physical education teachers from a similar perspective. The mean score for each group was well below the median score for E-Type behaviors. Thus, students responding negatively to the work and learn questions viewed their physical education teachers as noneffective.

The results of the two separate ANOVA procedures indicate that students responding that they did not work very hard and those that indicated that they did not learn very much perceived their physical education teachers similarly on both I-Type and E-Type behaviors. Only 27 (13%) of the 206 responding students answered the work and learn questions in the negative. Further investigation of the results indicated that the mean scores of those groups for I-Type and E-Type behaviors were more divergent than for the mean scores of inviting and effective behaviors as reported by students answering that they had worked very hard and that they had learned very much.



In addition to being divergent, the mean scores of the students reporting not working very hard and not learning very much were well below the median score for I-Type and E-Type teacher behaviors. One could conclude that a small minority of the students responding to the work and learn questions perceive their physical education teachers as demonstrating disinviting and non-effective behaviors. Conversely, the majority of the responding students to those two questions perceive their physical education teachers as being inviting and effective.

As the ANOVA procedures indicated that no significant difference existed, the null hypothesis, there is no significant difference between either I-Type or E-Type behaviors of physical education teachers according to student reports that they did not work very hard and that they did not learn very much, was retained.

The final question raised in this study was concerned with the relationship between the total score (I-Type + E-Type) on the IN-Scale and student response (strongly agree to strongly disagree) to the question: "this is the most inviting and effective physical education teacher I have ever had."

Table 23 shows the results of the correlation procedures. Included in the table are the mean, variance, and standard deviation of the variables investigated.

Although low, Table 23 indicates that a significant positive relationship ( $r = .357$ ) did exist between the total score and the degree of agreement in categorizing a teacher as being the most inviting and effective. Those perceptions correlate with the combined I-Type and E-Type behaviors scores reported by the 206 students participating in this study.

Table 23  
Correlation of Total Score and Indication of  
Past and Present Teacher Performance  
Related to I & E-Type Behaviors

N = 206

	r	Mean	Variance	Standard Deviation
Total Score	.357**	192.61	653.21	25.56
Past & Present Teacher Performance		2.81	3.15	1.78

r.05, 100df = .195

\*\*Significant at .01 alpha

In view of the significant positive relationship indicated, the null hypothesis, there is no significant relationship between I-Type and E-Type behaviors based on total score of the IN-Scale and how students respond to the statement "this is the most inviting and effective physical education teacher I have ever had", was rejected; the alternative hypothesis was retained.

### Summary

The results of the data appear to support some of the findings of previous research (Inglis, 1976; Lambeth, 1980), especially from the perspective that there is a relationship between inviting and effective teacher behavior as measured by the IN-Scale. Additionally, the results tend to indicate that the relationship between I-Type and E-Type teacher behaviors may be investigated from the total score perspective as well as from the factorial viewpoint.

The results also appear to indicate that relationships between combination categories of inviting/disinviting and effective/noneffective teacher behaviors may be investigated through use of a median score as a method of identifying the various categories. Through this method, it was indicated that students

perceive physical education teachers as behaving in the different combination categories. The analyses indicated that a significant positive relationship did exist between inviting-effective and disinviting-noneffective behaviors. Conversely, no significant relationship was found to exist between disinviting-effective and inviting-noneffective teacher behaviors.

Through addition of different research questions this study attempted to expand on previous research on inviting and effective teacher behavior. The results indicate that physical education teachers are capable of rating students as high or low expectancy in the performance of physical skills. The results also indicate that the 13 teachers providing ratings on the students participating in the study viewed a majority of them as being in a neutral expectancy range. The analyses further indicated that high and low expectancy students perceived their physical education teachers from a different perspective on I-Type and E-Type behaviors. No similar difference was noted between the perceptions of athletes and nonathletes for I-Type and E-Type behaviors.

In addition, this study sought to determine whether students viewed themselves as working very hard and learning very much in their physical education classes. The results indicate that a majority of the students responding to those statements perceive themselves as working very hard and learning very much. Also, the analyses indicate that students giving affirmative responses to the work and learn question do not perceive their physical education teachers as displaying different I-Type and E-Type behaviors toward students. Students responding in the negative to those questions also do not perceive a difference in I-Type and E-Type teacher behaviors.

The results also indicate that students appear to be able to compare present teacher behavior as it relates to inviting and effective behavior to that

of former teachers. Additionally, the analyses indicate that that comparison correlates in a significantly positive relationship with the combination score of I-Type and E-Type behaviors as measured by the IN-Scale.

## CHAPTER V

### SUMMARY AND CONCLUSIONS

The purposes of this study were (1) to measure student perceptions of inviting (I-Type) and effective (E-Type) behaviors of physical education teachers in grades 9-12, (2) to measure I-Type and E-Type behaviors of physical education teachers as reported by students identified by their teachers as high and low expectancy students in the performance of physical skills, and (3) to measure I-Type and E-Type behaviors of physical education teachers as reported by students participating or not participating on a school athletic team (athletes/nonathletes). Also under investigation was the possibility that students perceive physical education teachers as demonstrating inviting-effective, inviting-noneffective, disinviting-effective, and disinviting-noneffective behaviors. Literature reviewed included (a) effective teaching, (b) teacher expectations, and (c) invitational teaching.

Within the study, answers were sought for eight questions designed to meet the stated purposes. The questions sought to expand the base of empirical knowledge concerning inviting/effective teaching, specifically within physical education. In addition, a test-retest procedure was used to determine the applicability of the IN-Scale (Inglis, 1976) for secondary school students in the physical education environment.

Fifteen physical education teachers from three high schools in two public school systems in southern Virginia volunteered to participate in the study. One physical education class of each participating teacher was selected to complete the IN-Scale and questions contained on the IN-Scale Answer Sheet.

One participating teacher and class participated in the test-retest procedures, leaving 14 teachers and classes to provide data for the study. This resulted in 206 students completing usable IN-Scale Answer Sheets.

The instrument (IN-Scale) used for collection of the data was devised by Inglis (1976) and tested in a postsecondary environment of general/technical subject areas. The IN-Scale is a Likert-type instrument consisting of 50 items measuring I-Type and E-Type teaching behaviors. Twenty-six items measure I-Type behaviors and 24 items measure E-Type teacher behaviors.

Lambeth (1980) used the instrument in a similar subject area in a secondary setting. Upon the advice of the principal of the school where she conducted her study, Lambeth defined certain words contained in the 50 items of the instrument. Those definitions were incorporated in the IN-Scale used in this study. Through such action, the instrument appears to have been strengthened for use at the secondary level, as less than ten students requested clarification or definition of only three items during the data collection period for this study.

The data were analyzed using Pearson-Product Moment Correlation and one-way ANOVA procedures. Results of the data analyses are summarized as follows:

1. Physical education students rate their teachers as demonstrating inviting-effective, inviting-noneffective, disinviting-effective, and disinviting-noneffective teaching behaviors.
2. Students identifying themselves as athletes and nonathletes do not perceive their teachers as displaying different I-Type and E-Type behaviors toward the two groups of students.

3. Students identified by their physical education teachers as high and low expectancy students in the performance of physical skills perceive their teachers as demonstrating differential I-Type and E-Type teaching behaviors to the two groups of students.

4. Students reporting that they worked very hard and that they learned very much, and students reporting that they did not work very hard and did not learn very much report no differential I-Type and E-Type teaching behavior being displayed toward those groups.

5. Students appear to be able to evaluate present physical education teachers as they compare to previous physical education instructors, and a significant positive relationship did exist between the total score of the IN-Scale items and that comparison of past and present teachers.

6. A significant positive relationship was found to exist between the total scores of I-Type and E-Type teaching behaviors contained in the items of the IN-Scale.

### Conclusions

Within the limits of this exploratory study of the relationship between I-Type and E-Type behaviors of physical education teachers, grades 9-12, and the research questions of this study, the following conclusions appear to be warranted:

1. The In-Scale appears to be a suitable instrument for use in determining inviting and effective teaching behaviors of physical education teachers at the secondary level.

2. A significant positive relationship does exist between the two major categories (I-Type and E-Type) of behavior contained in the IN-Scale.

3. Through use of a median for I-Type and E-Type behavior scores, four combinations of behaviors—inviting-effective, inviting-noneffective, disinviting-effective, and disinviting-noneffective—may be investigated.

4. Physical education teachers can and do form expectations of their students with respect to a student's performance of physical skills.

5. There is a tendency for students identified as having a high expectancy for success in the performance of physical skills and for students identifying themselves as athletes to report higher scores in both inviting and effective teaching behaviors than do students identified as having a low expectancy for success in the performance of physical skills and nonathletes.

6. In assessing how hard they work and how much they learn in a physical education class, a majority of the students completing the IN-Scale for this study perceived themselves as working very hard and learning very much in their physical education class.

### Implications

The significance of this study lies in its potential for application by teachers of physical education and perhaps teachers of other subject matter areas. Teachers could use the IN-Scale as a method of analyzing their teaching behaviors to check for evidence of inviting and effective behaviors. Certain items of the Scale in either category (I-Type or E-Type) could be selected to determine whether or not those behaviors are felt by the entire class or by specific students.

By periodical completion of the instrument by students, colleagues, and supervisors, feedback of one's teaching behaviors as perceived by others could be provided and changes noted. Through such uses, a teacher could develop an awareness of specific areas of teaching behaviors which may need modification.



Additionally, in-service courses for teachers which focus on inviting and effective teaching behaviors might lead to more I-Type and E-Type teaching, and, subsequently, greater student interest in physical education. Finally, given the information available on inviting and effective teaching at the secondary level, physical education teacher training programs could implement I-Type and E-Type behavior awareness units into courses of study. The use of any of these implications may enhance the teaching-learning process, especially in physical education.

#### Recommendations for Further Study

The concept of invitational teaching is relatively new and thus has received little attention from researchers. Conversely, teacher effectiveness has been and continues to be an avid subject for research. Previous studies (Inglis, 1976; Lambeth, 1980) and this study have indicated that there is a relationship between the behaviors in the two theoretical concepts. Therefore, it would appear that research co-joining invitational/effective teaching should be ongoing.

Previous investigations of inviting/effective teaching has centered on the development of an instrument to measure those types of behaviors (Inglis, 1976), and the study of the relationship of I-Type and E-Type teaching behaviors in a postsecondary and secondary setting of general/technical subject teachers. This study was concerned with secondary students in physical education classes. While each of those studies has made its contribution to research concerning inviting/effective teaching, none has replicated the other, except in the relationship of I-Type and E-Type behaviors of teachers. Therefore, many questions remain unanswered. The following recommendations are perceived as worthwhile endeavors for future research:

1. Replication of that part of the Inglis (1976) study concerned with jurying the instrument. It is believed that in the past several years more scholars have become familiar with the concept of inviting teaching. Therefore, a new jury may judge some E-Type teaching behaviors as I-Type. This may be especially true in the E-Type factor of interpersonal contact.
2. That if such a replication is accomplished, a factor analysis be conducted to verify or revise the factors comprising the IN-Scale.
3. That a study be conducted utilizing a teacher observation instrument, such as Cheffers Adaptation of Flanders Interaction Analysis System (Cheffers, 1972), and the IN-Scale to determine whether any relationship or difference exists between the behaviors measured by those instruments.
4. That further research at the secondary level in physical education investigating the relationship of inviting and effective teaching study those behaviors of the teacher in all aspects of that person's responsibility rather than from the narrow perspective of the performance of physical skills.
5. That studies concerning the relationship of I-Type and E-Type behaviors of physical education teachers be conducted at the elementary, middle, and junior high school levels.
6. That an instrument be designed for teachers to rate themselves on inviting and effective behaviors, thereby allowing investigation of differences between student reports on the IN-Scale and how teachers perceive their I-Type and E-Type behaviors.

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## APPENDIX A

## IN-SCALE

Instructions to Students

The following pages contain a number of statements about your physical education teacher. You will differ in the way you feel about each item. With some, you will strongly agree, with some you will strongly disagree, and on some you will be in between. THERE ARE NO RIGHT ANSWERS.

On the answer sheet you will see a space for your name and other information. Please enter that information and also respond to the other statements with a letter (a = strongly agree, b = agree, c = undecided, d = disagree, and e = strongly disagree). Also, please enter any school athletic team of which you are a member in the space provided.

Please read each statement carefully, refer to the scale "a" through "e" at the top of each page, and place your level of agreement or disagreement, by putting an "X" in the box which best represents your answer to each item on the answer sheet.

AS YOU RESPOND TO THE QUESTIONS, PLEASE CONSIDER HOW YOUR TEACHER USUALLY BEHAVES TOWARD YOU DURING THE PHYSICAL EDUCATION CLASS. PLEASE DO NOT ALLOW AN ISOLATED INCIDENT TO INFLUENCE YOUR RESPONSES.

- a = Strongly agree with this statement
- b = Agree with this statement
- c = Undecided about this statement
- d = Disagree with this statement
- e = Strongly disagree with this statement

1. The teacher treats me with fairness.
2. The style of teaching in this class is democratic.
3. The teacher seems to be irresponsible rather than responsible.
4. As the situation arises, the teacher seems to be flexible rather than inflexible.
5. I am treated with friendliness and care in this class.
6. I am not respected by the teacher.
7. I am not seen as an important part of the class process.
8. I am treated as though I am trustworthy.
9. I am treated as though I am not dependable.
10. I am treated as though I slow down the teaching and learning in this class.
11. The teacher is concerned with my personal development.
12. The teacher is knowledgeable in the subject matter.
13. The teacher has not made the information important to me.
14. The teacher sees me as a co-worker on a common problem.
15. The teacher greatly encourages me.
16. The teacher seldom reassures me.
17. The teacher rarely tries to understand my feelings.
18. The teacher is able to understand my feelings.
19. The teacher gives and takes in the class environment.
20. The teacher is hostile toward me.
21. The teacher is rejecting to me.
22. The teacher's own needs interfere with the understanding of me.

- a = Strongly agree with this statement
- b = Agree with this statement
- c = Undecided about this statement
- d = Disagree with this statement
- e = Strongly disagree with this statement

- 23. The teacher is very unpleasant to me.
- 24. The teacher feels disgusted by me.
- 25. The teacher is inviting toward me.
- 26. The teacher uses punishment.
- 27. The teacher cannot maintain a good relationship with me.
- 28. The teacher presents the material in an organized, clear, brief manner.
- 29. The teacher creates an uninteresting class environment for me.
- 30. The teacher seldom makes personal contact with me in the class.
- 31. If the teacher makes contact with me in the class, it is typically brief.
- 32. The contact the teacher makes with me in the class is unemotional.
- 33. The teacher is sincerely interested in me as a student.
- 34. The teacher is not prepared to teach this course.
- 35. The teacher is easy to understand.
- 36. The teacher knows about me as a person.
- 37. The teacher encourages my interests and needs.
- 38. The teacher demonstrates that he or she cares about me by putting his or her imagination into teaching.
- 39. The teacher demonstrates that he or she puts effort into his or her teaching.
- 40. No description of objectives are given to me for this course.
- 41. The tests in this class measure my performance which is not closely related to attaining the objectives.
- 42. I am actively encouraged to participate in learning the materials.
- 43. Examples and/or illustrations are rarely provided by the teacher.

- a = Strongly agree with this statement
- b = Agree with this statement
- c = Undecided about this statement
- d = Disagree with this statement
- e = Strongly disagree with this statement

- 44. There is no explanation of grading procedures.
- 45. The teacher respects my decisions.
- 46. The teacher gives me confidence as a student.
- 47. The teacher suggests that I don't have the ability even if I had the desire.
- 48. I can tell the teacher is not genuinely interested in me.
- 49. The teacher makes me feel like my ideas are important.
- 50. When I am in this class I can almost feel myself becoming better at performing physical skills.

## IN-SCALE ANSWER SHEET

	a	b	c	d	e		a	b	c	d	e
1						26					
2						27					
3						28					
4						29					
5						30					
6						31					
7						32					
8						33					
9						34					
10						35					
11						36					
12						37					
13						38					
14						39					
15						40					
16						41					
17						42					
18						43					
19						44					
20						45					
21						46					
22						47					
23						48					
24						49					
25						50					

Please enter the requested information in the space provided by each of the following statements:

Grade Level: \_\_\_\_\_

Period: \_\_\_\_\_

Sex: \_\_\_\_\_

Name: \_\_\_\_\_

I am a member of this school's

\_\_\_\_\_ team.  
(Athletic)

Please respond to the following statements by placing a letter in the space provided as follows:

a = Strongly agree

b = Agree

c = Undecided

d = Disagree

e = Strongly disagree

I learned very much in this course. \_\_\_\_\_

I worked very hard in this course. \_\_\_\_\_

This is the most inviting and effective physical education teacher I have ever had. \_\_\_\_\_

This is the most inviting and non-effective physical education teacher I have ever had. \_\_\_\_\_

This is the most disinviting and effective physical education teacher I have ever had. \_\_\_\_\_

This is the most disinviting and noneffective physical education teacher I have ever had. \_\_\_\_\_

I-TYPE AND E-TYPE FACTORS  
AND ITEM NUMBERS

I-Type Factors and Item Numbers

Caring: 5, 11, 15, 16, 17, 18, 30, 31, 32, 33, 36, 37, 38, 42, 45, 46, 48, 49,  
50 (N = 19)

Respect: 6, 7, 8, 9, 10, 14, 47 (N = 7)

E-Type Factors and Item Numbers

Course Organization: 29, 40, 41, 43, 44 (N = 5)

Interpersonal Contact: 1, 20, 21, 22, 23, 24, 25, 26, 27 (N = 9)

Learning Environment: 2, 3, 4, 12, 13, 19, 28, 34, 35, 39 (N = 10)

## APPENDIX B



## TEACHERS INFORMED CONSENT FORM

I understand that the purpose of this study is to investigate invitations and effectiveness of physical education teachers. I have been fully informed as to why I qualify for participation. I understand that this is not an evaluation of my performance as a physical education teacher and that while a copy of the completed study will be submitted to the Central Administrative Office, I shall remain anonymous. In addition: (a) I confirm that my participation is entirely voluntary, no force was applied to obtain my cooperation, (b) I understand that I may terminate my participation at any time, (c) I understand that the responses of participating students in my class will be used in research by the investigator in the completion of his dissertation and publications subsequently based on it, and (d) I understand that I may obtain a summary of the study by writing the investigator.

After having read the above, I volunteer to cooperate in the stated study as a participant.

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

## APPENDIX C

TEACHER RATING OF STUDENT  
EXPECTED PHYSICAL PERFORMANCE

Please rate each student in this class on a scale of 1-7 ( 1 = low, 7 = high).

Base your rating on how you expected each student to perform the physical movements required in this class at the beginning of the school year.

Please rate your students as you have them recorded in your class grade book. Example: George Aaron is the first student in your grade book. His rating goes in block number 1.

	1	2	3	4	5	6	7		1	2	3	4	5	6	7
1								19							
2								20							
3								21							
4								22							
5								23							
6								24							
7								25							
8								26							
9								27							
10								28							
11								29							
12								30							
13								31							
14								32							
15								33							
16								34							
17								35							
18								36							

## APPENDIX D

Robert B. Turner  
P. E. Department  
Averett College  
Danville, VA 24541

February 4, 1982

Dear Parent:

As a candidate for the Doctor of Education degree at the University of North Carolina, Greensboro, I am involved in a research study leading to that degree. This letter is to inform you of that study, which is to be conducted in the Pittsylvania County and Danville City School Systems. This research will focus on the invitations extended by and the effectiveness of volunteer physical education teachers as perceived by their students.

Your son or daughter is a student in a physical education class whose teacher has volunteered to be a participant in the study. Your child will be asked to complete a fifty (50) item questionnaire concerning the teacher. Also, your child will be asked to indicate if he or she is a member of a School Athletic team. As your child is under eighteen (18) years of age, your consent is necessary for his or her participation in the study.

If you agree to your child's participation in the study, no further action on your part is necessary. If you do not agree to your child's participation, please sign the form where indicated and have your son or daughter return it to his or her physical education teacher. No pressure will be put on any student to participate in this study.

Please be assured that neither your name or your child's name will be divulged in any of the findings associated with this study. Also, please be assured that no one other than I will know how your child responded to any of the items on the questionnaire.

Thank you for your assistance.

Sincerely,

Robert B. Turner

**DENIAL OF PARENTAL PERMISSION FORM**

I do not give my permission for my child to participate in the stated study  
as a participant.

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

## APPENDIX E

## STUDENT INFORMED CONSENT FORM

I understand that the purpose of this study is to investigate invitations and effectiveness of physical education teachers. I have been informed as to why I qualify for participation. I understand that my responses to the questionnaire will remain anonymous. In addition: (a) I confirm that my participation is entirely voluntary, no force was applied to obtain my cooperation in this study, (b) I understand that I may terminate my participation at any time, (c) I understand that my responses will be used by the investigator in the completion of his dissertation and publications subsequently based on it, and (d) I understand that I may obtain a summary of the study by writing the investigator.

After having read the above, I volunteer to cooperate in the stated study as a participant.

NAME: \_\_\_\_\_  
(Signature)

DATE: \_\_\_\_\_



APPENDIX F

## DISTRIBUTION OF I-TYPE SCORES

N = 206

Score	f	cf	Score	f	cf	Score	f	cf
129	1	206	105	3	146	84	2	43
127	1	205	104	5	143	83	3	41
126	2	204	103	3	138	82	3	38
125	2	202	102	5	135	81	2	35
124	2	200	101	7	130	80	4	33
122	3	198	100	11	123	79	2	29
121	1	195	99	3	112	78	2	27
120	2	194	98	4	109	77	3	25
119	2	192	97	6	105	76	2	22
118	4	190	96	4	99	75	4	20
116	2	186	95	6	95	73	2	16
115	2	184	94	5	89	72	2	14
114	1	182	93	4	84	71	1	12
113	6	181	92	6	80	70	1	11
112	3	175	91	6	74	69	2	10
111	4	172	90	8	68	68	2	8
110	4	168	89	6	60	66	1	6
109	1	164	88	3	54	63	2	5
108	5	163	87	4	51	62	1	3
107	2	158	86	2	47	60	1	2
106	10	156	85	2	45	54	1	1

## APPENDIX G

## DISTRIBUTION OF E-TYPE SCORES

N = 206

Score	f	cf	Score	f	cf	Score	f	cf
117	2	206	100	6	126	84	1	28
116	6	204	99	4	118	83	2	27
115	2	198	98	7	114	81	2	25
114	4	196	97	8	107	80	1	23
113	2	192	96	3	99	79	3	22
112	4	190	95	8	96	78	3	19
110	3	186	94	7	88	77	3	16
109	5	183	93	7	81	76	2	13
108	3	178	92	5	74	75	2	11
107	8	175	91	4	69	74	1	9
106	6	167	90	5	65	73	2	8
105	7	161	89	6	60	72	2	6
104	4	154	88	6	54	69	1	4
103	6	150	87	8	48	68	1	3
102	11	144	86	6	40	62	1	2
101	6	132	85	6	34	61	1	1